Anne Arundel County General Development Plan

April 2009

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Chapter 1: Introduction

Purpose and Contents

Anne Arundel County's General Development Plan, or GDP, is a comprehensive land use plan prepared in compliance with State requirements and guidelines. It is a policy document that is formally adopted by the County Council. The Plan establishes policies and recommendations to guide land use decisions over a 10 to 20 year planning horizon. The Plan is used by the County, State and federal agencies, citizens, developers, consultants, community associations, and others in making decisions about growth and development, land preservation, resource protection, and the provision of infrastructure and services.

As a charter county, Anne Arundel County is granted planning and zoning powers by Article 25A of the Annotated Code of Maryland. Article 66B (Land Use) of the Annotated Code also includes some requirements for comprehensive planning that apply to charter counties. Specifically, charter counties must address transportation plans, land use and development policies, sensitive environmental areas, water resources, and mineral resources in their comprehensive plans.

The Anne Arundel County Code designates the Office of Planning and Zoning to prepare and periodically update the comprehensive plan to guide growth and development. The County has had a General Development Plan since 1968, with updates in 1978, 1986, and 1997. Historically, the County has revised or amended the GDP to reflect demographic, economic, social and environmental changes that have occurred. The *1997 General Development Plan* also incorporated policy recommendations that comply with Maryland's Economic Growth, Resource Protection and Planning Act of 1992 (the Planning Act) and related "Smart Growth" legislation.

State Planning Requirements

The State's Economic Growth, Resource Protection and Planning Act was enacted in 1992 and amended in 2000 and 2009. This legislation established statewide growth management policies and mandates including several statutory Visions for growth, resource protection, and planning in the State of Maryland. Local jurisdictions are required to incorporate the following Visions into their comprehensive plans:

- a high quality of life is achieved through universal stewardship of the land, water, and air resulting in sustainable communities and protection of the environment;
- citizens are active partners in the planning and implementation of community initiatives and are sensitive to their responsibilities in achieving community goals;
- growth is concentrated in existing population and business centers, growth areas adjacent to these centers, or strategically selected new centers;
- compact, mixed-use, walkable design consistent with existing community character and located near available or planned transit options is encouraged to ensure efficient use of land and transportation resources and preservation and enhancement of natural systems, open spaces, recreational areas, and historical, cultural, and archaeological resources;

- growth areas have the water resources and infrastructure to accommodate population and business expansion in an orderly, efficient, and environmentally sustainable manner;
- a well-maintained, multimodal transportation system facilitates the safe, convenient, affordable, and efficient movement of people, goods, and services within and between population and business centers;
- a range of housing densities, types, and sizes provides residential options for citizens of all ages and incomes;
- economic development and natural resource-based businesses that promote employment opportunities for all income levels within the capacity of the State's natural resources, public services, and public facilities are encouraged;
- land and water resources, including the Chesapeake and coastal bays, are carefully managed to restore and maintain healthy air and water, natural systems, and living resources;
- waterways, forests, agricultural areas, open space, natural systems, and scenic areas are conserved;
- government, business entities, and residents are responsible for the creation of sustainable communities by collaborating to balance efficient growth with resource protection;
- strategies, policies, programs, and funding for growth and development, resource conservation, infrastructure, and transportation are integrated across the local, regional, state, and interstate levels to achieve these visions.

In 1997, the State General Assembly enacted a series of legislation known collectively as the Smart Growth and Neighborhood Conservation Initiatives. These initiatives included the Smart Growth Areas Act as well as the creation of several State grant programs to promote growth management and neighborhood conservation. The 1997 Smart Growth Areas Act reflected the statewide growth management policy to support and revitalize existing communities and direct growth to areas where there has already been significant financial investment in existing infrastructure. This legislation directs State funding for infrastructure to Priority Funding Areas (PFAs). These areas are existing communities or other locally designated areas where the State and local jurisdictions want to encourage and support economic development and new growth consistent with the 1992 Visions. Local jurisdictions were required to designate Priority Funding Areas based on six criteria defined by the State. Anne Arundel County designated Priority Funding Areas in 1998 that are consistent with State policies and guidelines and with the County's General Development Plan and Land Use Plan. Collectively these serve to define the County's targeted growth areas.

Smart growth includes revitalizing existing communities and directing growth to areas where public infrastructure is in place.

In 2006, the General Assembly enacted several new legislative bills related to planning and zoning that placed new requirements on local comprehensive plans. House Bill 1141

requires all local governments to include a Water Resources Plan Element in their comprehensive plans. The purpose of this element is to provide an assessment of the impacts of existing and future land use plans on area water resources, including water and wastewater supply capacities and local tributaries. The Agricultural Stewardship Act of 2006 (House Bill 2) requires counties with certified agricultural land preservation programs to designate Priority Preservation Areas for the purpose of streamlining State and local funds used for agricultural preservation. Both of these elements are incorporated in Anne Arundel County's *2009 General Development Plan*.

The Planning Framework

The General Development Plan serves as the core of the County's land use planning program. It establishes the overall policy framework for growth and development. Its recommendations are implemented using a variety of tools and mechanisms, including additional planning documents. The following is a summary of the County's comprehensive planning framework:

- **General Development Plan** – the overall comprehensive plan that establishes policies and recommendations to guide decisions about growth and development, land preservation, resource protection, and the provision of infrastructure and services;
- **Small Area Plans** – sixteen community-based plans that were prepared to refine and help implement the goals and recommendations of the 1997 GDP and to increase public outreach at the community level;
- **Sector Plans** – plans that provide guidance for growth and development in specific areas with unique characteristics that require a specific set of policies, guidelines or standards targeted to that particular sector or area. These include the Parole Urban Design Plan and the Odenton Town Center Master Plan;
- **Functional Master Plans** – plans that focus on a specific function of the County government, such as the provision of public utilities or recreation opportunities, or on a specific goal such as the establishment of a greenways network. These include the County's Water and Sewer Master Plan; Greenways Master Plan; Pedestrian and Bicycle Master Plan; Land Preservation, Parks, and Recreation Plan; Consolidated Plan; and Transit Development Plan;
- **Facilities Plans and Strategic Plans** – these plans are usually done by specific county agencies or service providers for strategic planning and capital budgeting purposes. They typically include more detailed projections of capital facility and/or operational needs, and are updated more frequently than the General Development Plan and functional plans. Examples include the Emergency Operations Plan and the Educational Facilities Master Plan, which is updated annually;
- **Development Regulations** – development regulations are one of the principal mechanisms used to implement the County's land use and development policies, as adopted in the General Development Plan. Key sections of the County Code that regulate land use and development are Article 18, Zoning; Article 17, Subdivision and Development; and Article 16, Floodplain Management, Sediment Control, and Stormwater Management. These regulations can be supplemented by

design or procedures manuals that establish more specific criteria or guidelines. For example, Article 16 of the County Code requires that the County prepare and regularly update a Stormwater Management Practices and Procedures Manual;

- **Capital Budget and Program** – the Capital Budget is another principal tool used in implementing GDP land use policies, in that it enables the County to program available funds for capital facilities needed to serve new growth and development. The Capital Budget is prepared for a six-year timeframe and is updated and adopted by the County Council annually.

As seen, the overall process of land use planning and growth management in the County is built upon a hierarchy of plans, from the more general policy plan which is the GDP, to the more specific functional and facilities plans, and finally to the implementation tools. The GDP allows the entire planning framework to be linked to a core set of land use policies.

GDP Planning Process

The planning process for the 2009 update to the General Development Plan began in the summer of 2007 and extended through the winter of 2009. The process was conducted under two phases. During Phase I, a series of Background Reports were prepared on specific topics, or subjects, relevant to the GDP. The Background Reports summarized existing conditions, programs, processes, and other data relevant to each topic. They also identified current and anticipated needs to be addressed in the General Development Plan.

These Background Reports were useful in two ways. First, they were posted on the County web site as an informational tool. Secondly, the information and conclusions in these reports were used by County staff in developing the policies and strategies in the GDP. Background Reports were prepared on the following topics:

Agricultural Land Preservation
Community Services
Cultural Resources
Economic Development
Housing
Land Use
Natural Resources
Public Safety
Public Utilities
Sea Level Rise
Transportation
Water Resources

These reports were completed and presented on the County web site between February and June of 2008. At the end of this phase, County staff conducted a public briefing before the Planning Advisory Board in June 2008 to present and discuss the major findings and conclusions from Phase I.

During Phase II of the process, planning analysis was completed as needed to develop the plan policies and recommendations and to compile a Public Review Draft Plan. This phase

took place between July 2008 and December 2008. The Public Review Draft was presented on the County web site for public review in January 2009, and was also presented at a series of four Public Forums conducted at different locations throughout the County. Public comment on the Draft Plan was received at the forums as well as in writing during the public comment period. Comments received were evaluated by staff and incorporated in the plan as appropriate and feasible. Phase II ended with the preparation of a Final Draft Plan.

The GDP process also included two advisory groups. The Technical Advisory Panel consisted of 15 County department heads or their appointees. The panel's role was to review and advise on the Background Reports, the draft policies and strategies, and the Draft Plan prepared by the staff prior to public release. This enabled the County to ensure consistency and oversight among the many County agencies that work collectively to implement the GDP.

The second advisory group was the Special Advisory Committee for the General Development Plan. This committee was established in March 2008 and was composed of County citizens selected through an application process and appointed by the County Executive. The role of this committee was to provide review and comment to the Planning Advisory Board on the Final Draft Plan. The Special Advisory Committee also worked with the planning staff during Phase II as draft policies and recommendations were being formulated in order to provide input and feedback.
Prior to County Council introduction, the Final Draft GDP was presented at a public briefing before the Planning Advisory Board and made available on the website for public review. The Final Draft Plan was then introduced to the County Council for public hearing and adoption.

Structure of the GDP

The *2009 General Development Plan* is organized using a combination of major themes (e.g. Balanced Growth; Community Preservation) as well as major elements (e.g. Land Use; Transportation). The four themes were derived from the overall plan vision, as presented in Chapter 2, and represent this Plan's priorities for the future in a broad sense. The other major chapters address other required components of the comprehensive plan. The organizational structure is outlined below:

- **Chapter 1** Introduction
- **Chapter 2** Overview of Anne Arundel County
- **Chapter 3** Balanced Growth and Sustainability
- **Chapter 4** Community Preservation and Enhancement
- **Chapter 5** Environmental Stewardship
- **Chapter 6** Quality Public Services
- **Chapter 7** The Land Use Plan
- **Chapter 8** Priority Preservation Area
- **Chapter 9** The Transportation Plan

- **Chapter 10** The Water Resources Plan
- **Chapter 11** Concurrency Management Plan
- **Chapter 12** Implementation Plan

As mentioned, each theme represents a broad priority for the future. Each thematic chapter (chapters 3 through 7) presents some background information and highlights the important needs in addressing that priority. The user is encouraged to refer to the series of GDP Background Reports for more in-depth background information. Each thematic chapter then presents a list of goals, policies, and actions that will help to achieve the overall Plan vision. Goals, policies, and actions are a fairly standard hierarchy used in comprehensive planning and can be defined as follows:

- **Goal:** a statement of a desired end; the objective toward which an action is directed.
- **Policy:** a statement of intent upon which future decisions are based.
- **Action:** a specific task to be undertaken in order to achieve a goal.

Chapters 7 through 10 address the four major plan components required by State planning law: land use and development policies, a priority preservation plan, a transportation plan, and a water resources plan. (Other State requirements regarding sensitive areas and mineral resources are addressed in Chapter 5). Chapter 11 addresses concurrency management as required by Article 18 of the County Code with regard to available and future capacities of specified public facilities. Finally, Chapter 12 lays out a schedule and steps for implementing the various actions recommended in this Plan.

Chapter 2: Overview of Anne Arundel County

Anne Arundel County was established in the 17th century and adopted its own governing charter in 1964. Over the centuries it has evolved from an early Colonial settlement into a thriving suburban county. Located in Central Maryland, it lies within the Consolidated Baltimore-Washington Metropolitan Area and benefits from its proximity to both major cities as well as its location along the Mid-Atlantic corridor. Yet, in spite of the strong urban influences, the County has its own uniqueness and an impressive range of diversity. It is home to the historic City of Annapolis that has served as the State Capital since 1694. With over 400 miles of tidal shoreline along the Chesapeake Bay -- one of the largest natural estuaries in North America -- and it tributaries, the County has a long history of boating, sailing, and seafood harvesting. The County contains suburban neighborhoods such as those found in Pasadena and Crofton, as well as small waterfront communities such as Shady Side. It contains more densely developed hubs such as the Parole and Glen Burnie town centers, and also wide expanses of agricultural and scenic rural areas such as Davidsonville, Harwood, and Lothian. It is home to major Federal institutions including Fort Meade Military Base and NSA as well as the Baltimore Washington International Airport, one of the busiest international airports in the eastern U.S. Its economy is comprised of major national corporations as well as small family businesses and farming operations. In short, the County continues to offer something for just about everyone.

Historical and Current Growth Trends

The fact that Anne Arundel County has succeeded in retaining such diversity in spite of steadily increasing growth pressures over the past several decades is somewhat unique in itself. Ever since the depression era in the 1930s, the County's population has continued to grow steadily, from 68,375 residents in 1940 to 489,656 residents in 2000 according to U.S. Census Bureau decennial data. The Baltimore Metropolitan Region[1] as a whole has experienced strong growth in population over the last eighty years, and Anne Arundel County has been one of the fastest growing counties in the region.

Between 1990 and 2000, the County experienced a population increase from 427,239 to 489,656 persons, representing a 14.6% increase (Table 2-1). In comparison, the population of the Baltimore Metropolitan Region[1] increased by approximately 6.9% between 1990 and 2000 and the State population experienced an increase of 10.8% over the same ten-year period. As seen, the County's rate of population increase was over twice the rate of the Baltimore region and was also higher than the Statewide increase in population.

Table 2–1 Population of the County and Percent Growth over Time, 1990-2000

Total Population	1990	2000	% Change
Anne Arundel County	427,239	489,656	14.6
Baltimore Region	2,348,219	2,512,431	6.9
Maryland	4,780,753	5,296,486	10.8

1 *Baltimore Metropolitan Region is defined as the jurisdictional area of the Baltimore Metropolitan Council (BMC) which includes Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties and Baltimore City.*

The *1997 General Development Plan* projected that population in the County would increase to 531,500 by the year 2020. More recent estimates prepared by the County indicate that the population may reach that figure around the year 2010, and that it will increase to an estimated 579,137 persons by 2035. Since 2000, the County's rate of growth has predictably slowed. Current forecasts shown in Table 2-2 indicate that moderate growth in the County's population will continue over the 30-year forecast period, but that the rate of growth will continue to decline. The total County population by the year 2035 represents a 12.7% increase over the thirty-year period from 2005 to 2035. This is similar to the rate of population increase forecasted for the Baltimore region over the next few decades. This expected decline in the rate of growth is normal for a County such as Anne Arundel that is reaching its maturity or limits of growth.

Table 2–2 Population and Employment Forecasts, 2005 - 2035

Population	2005	2010	2015	2020	2025	2030	2035
Anne Arundel Co.	513,700	532,529	545,964	556,105	564,925	572,828	579,137
Baltimore Region	2,606,700	2,721,950	2,812,790	2,863,760	2,900,380	2,932,100	N/A
Maryland	5,589,800	5,897,600	6,176,060	6,386,230	6,570,140	6,737,750	N/A

Employment	2005	2010	2015	2020	2025	2030	2035
Anne Arundel Co.	318,435	341,750	371,613	401,449	424,264	444,364	460,657
Baltimore Region	1,623,200	1,721,900	1,828,600	1,880,000	1,918,000	1,963,000	N/A
Maryland	3,341,300	3,560,900	3,787,300	3,907,000	3,999,900	4,103,800	N/A

Source: County forecasts from Anne Arundel Co. Office of Planning & Zoning, Round 7 Forecasts, December 2006. Regional and State forecasts from MD Dept. of Planning, Planning Data Services, November 2007.

Employment in Anne Arundel County has also experienced steady increases over the past decades, and more recently has increased at a slightly higher rate than the population. Between 1990 and 2000, the number of jobs in the County increased from 252,700 to 297,300 jobs, representing an 18 % rate of growth, which exceeded the rate of increase in jobs for the Baltimore region as a whole as well as the State. It is anticipated that job growth in the County and the entire Baltimore-Washington region will continue to be strong over the long term, although the current economic downturn has made growth over the next five years much more difficult to predict.

Current estimates of job growth are somewhat stronger than what was projected in the 1997 GDP. The earlier Plan projected that the number of jobs in the County would increase from approximately 250,000 in 1990 to 313,000 by the year 2020. Statistics from the U.S. Bureau of Economic Analysis estimated that the County had over 297,300 jobs in the year 2000. The County's more recent forecast indicates that the number of jobs will reach 341,700 by the year 2010 and will surpass 400,000 jobs by the year 2020. Again,

the current economic downturn introduces some uncertainty as related to job growth estimates; however, it is anticipated that job growth in the region will remain relatively strong over the next 20 to 30 years. The County will update its growth forecasts after release of the data from the upcoming 2010 U.S. Census.

Significant Changes Since 1997

The continued growth in population and jobs has brought about several major developments that have been initiated or completed since the County's last GDP was adopted in 1997.

The completion of both the Arundel Mills Mall and the National Business Park office complex has brought new employment and shopping opportunities to the western part of the County. Yet, as growth along the BW Parkway continues, traffic has increased resulting in the widening of both MD 295 and MD 100, with additional plans for improvements along MD 175 and MD 32.

Five large Planned Unit Developments, or PUDs, were completed over the past 10 years or are almost complete. These include the Russett development in Laurel, Seven Oaks and Piney Orchard in Odenton, the Dorchester PUD in Severn, and South River Colony in Edgewater. Collectively these have provided an attractive range of housing opportunities for new residents locating in the County. Two additional Planned Unit Developments – Two Rivers in Odenton and Cedar Hill in Brooklyn Park – are in the final design stages. The Two Rivers development will provide 2,000 age-restricted units and the Cedar Hill PUD is planned for 1,300-1,600 units.

The Arundel Preserve mixed use development began construction in Severn in 2005 and is nearing completion, providing both residential and employment opportunities. Across MD 175, another new mixed use development, Parkside, is under final design. An expansion of the National Business Park in Jessup is also in the planning stages.

The Annapolis vicinity has seen the completion of the new Anne Arundel Medical Center, the expansion of the Annapolis Mall, and the beginning of the new Annapolis Town Center at Parole mixed use development; all bringing exciting new changes to the Parole Town Center.

These developments have brought new vitality to the County as well as new revenues, but they have also increased the demand for public facilities and services. To respond to these needs, the County and State have undertaken several major transportation projects over

the past ten years to help ease these development pressures and provide better access in and around the County. Projects include:

- Completion of double tracking of the Baltimore Central Light Rail system in Linthicum and Ferndale.
- Improvements to MD 100, completing a continuous 4-lane freeway between Columbia and Pasadena.
- Improvements to MD 32 at Fort Meade.
- Completion of the MD 2/US 50-301 interchange improvements in Parole.
- Construction of the Arundel Mills Boulevard interchange with MD 295.
- Construction of East-West Boulevard, providing access between Veterans Highway and Ritchie Highway.
- Improvements to Mountain Road (MD 177) in Pasadena.
- Improvements to accommodate new and anticipated development in the Odenton Town Center including Odenton Road, Morgan Road, and the MD 175 roundabout.

Increased development has also increased the need for new public services. To address some of these demands, the County has constructed new fire stations in Severn and Annapolis Neck and made major improvements to the Brooklyn Park Fire Station. The Western District Police Station has been expanded, a new Southern District Police Station was constructed near South River Colony, and a new substation was established at Arundel Mills. Following the events of September 11th, 2001 and the impact of several major storms, the County established a new state of the art Emergency Operations Center in the Glen Burnie Town Center that has improved the County's ability to respond to any future major emergencies that require coordination of all public safety providers.

New educational facilities include the Anne Arundel Community College expansions at both the Glen Burnie Town Center and Arundel Mills. Several new elementary schools serve communities such as Seven Oaks, Gambrills and Pasadena. In addition, library branches in Crofton and Odenton have been expanded.

To serve the County's senior population, the Department of Aging and Disabilities opened new or expanded facilities in Pasadena, Brooklyn Park and Odenton.

While these facilities address some of the increased needs of County citizens, meeting the demand for public facilities and services is an increasing challenge for the County as the cost of providing these facilities and services continues to rise. The County will need to place an increased focus on growth management and concurrency planning in the future. This will be further addressed in Chapter 11 of this Plan.

Key Land Use Planning Initiatives Since 1997

Since adoption of the 1997 GDP, the County has completed several major planning initiatives, research projects, and legislative revisions in order to implement the various recommendations in the 1997 Plan. The key accomplishments are listed in Table 2-3.

Table 2–3 Major Planning Initiatives Since 1997

Year	Initiative
1998	Designation of Rural Legacy Area
1999-2000	Development of integrated Geographic Information Systems for planning analysis
2000-2005	Adoption of 16 Small Area Plans and associated comprehensive zoning
2001	Adoption of Mixed Use Zoning legislation and creation of four Mixed Use Zoning categories
2001	Completed Annapolis, London Town, and South County Heritage Area Management Plan
2001-2002	Creation of a Commercial Revitalization program and designation of 16 revitalization districts
2002	Adoption of a Greenways Master Plan
2003	Adoption of a Pedestrian and Bicycle Master Plan
2003	Adoption of Odenton Town Center Master Plan
2004	Developed a consolidated Land Use Plan upon completion of last Small Area Plan
2005	Comprehensive revision to County Zoning Ordinance and Subdivision Regulations
2006	Development of a Watershed Management Tool to better integrate land use and water resources planning
2006-2008	Completion of three Watershed Management Plans
2007	Established Urban Design Study program for targeted redevelopment areas
2007-2008	Initiated a work program to develop a consolidated property geodatabase
2008	Adoption of a Land Preservation, Parks and Recreation Plan

The 1997 Land Use Plan shown in Figure 2-1 complied with the "smart growth" visions of the 1992 Planning Act by locating planned growth in suitable areas, where public infrastructure and services are available, and by preserving the County's rural areas for primarily low density development or agricultural uses.

The County then followed up this effort by designating a Priority Funding Area (PFA) that is consistent with State guidelines and criteria and with the 1997 Land Use Plan. The "Smart Growth" Areas Act of 1997 required the State to target funding for "growth-related" projects (e.g. highways, sewer and water construction, economic development assistance, etc.) to Priority Funding Areas in each local jurisdiction. This furthers the goal of directing new growth to the most suitable areas, consistent with the County's comprehensive land use plan. The County's current Priority Funding Area is shown in Figure 2-2. The PFA is generally concentrated in the northern and western parts of the county, along the MD 2 corridor, and around Annapolis.

At the same time, to further the goal of preserving the County's rural areas, in 1998 the County designated a Rural Legacy Area in order to help focus land conservation efforts. This allowed the County to participate in the State's Rural Legacy grant program through which development rights can be purchased from landowners in the area and properties can be protected under conservation easements. The County's Rural Legacy Area (RLA)

Figure 2–1 1997 GDP Land Use Plan

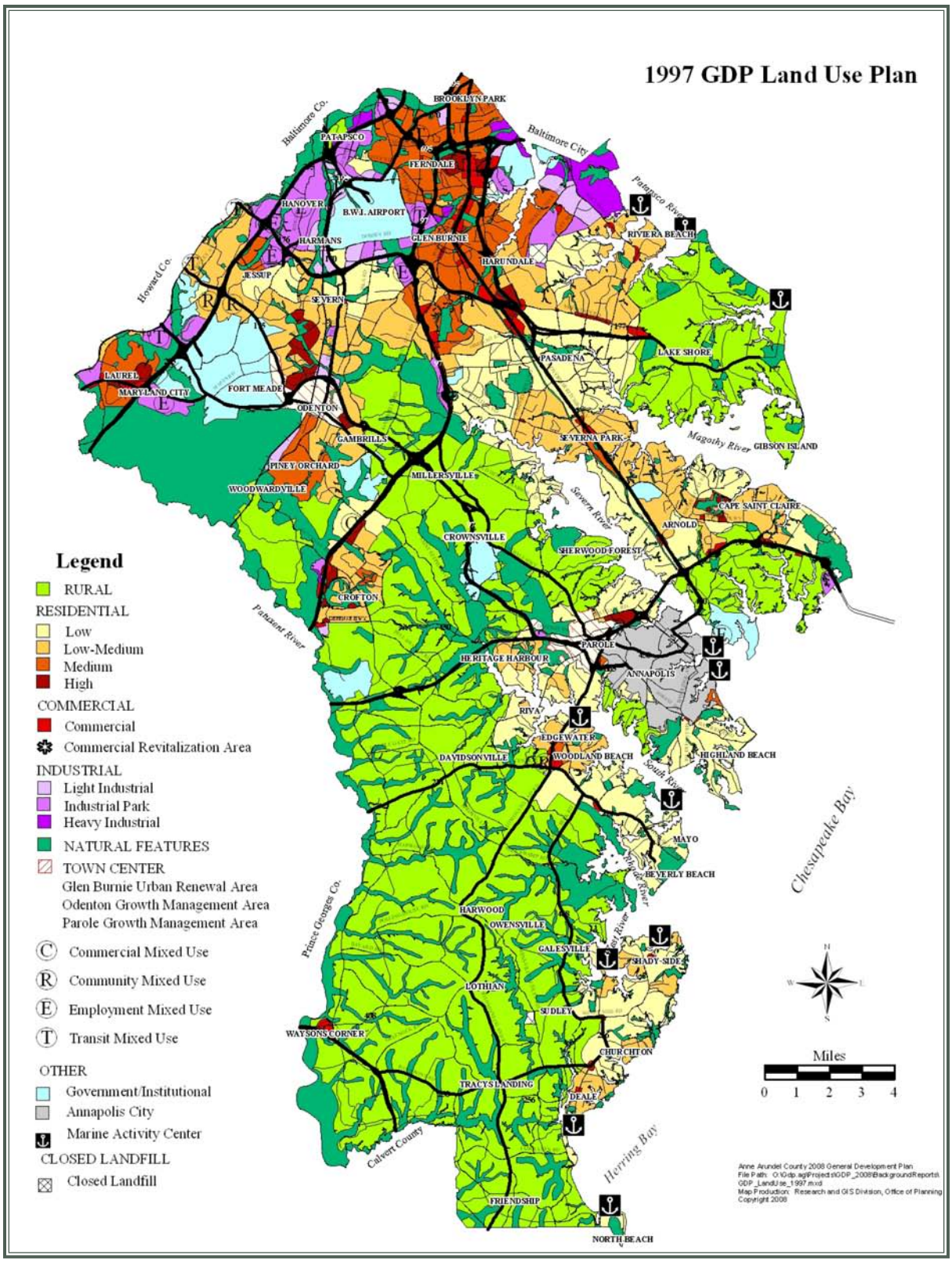
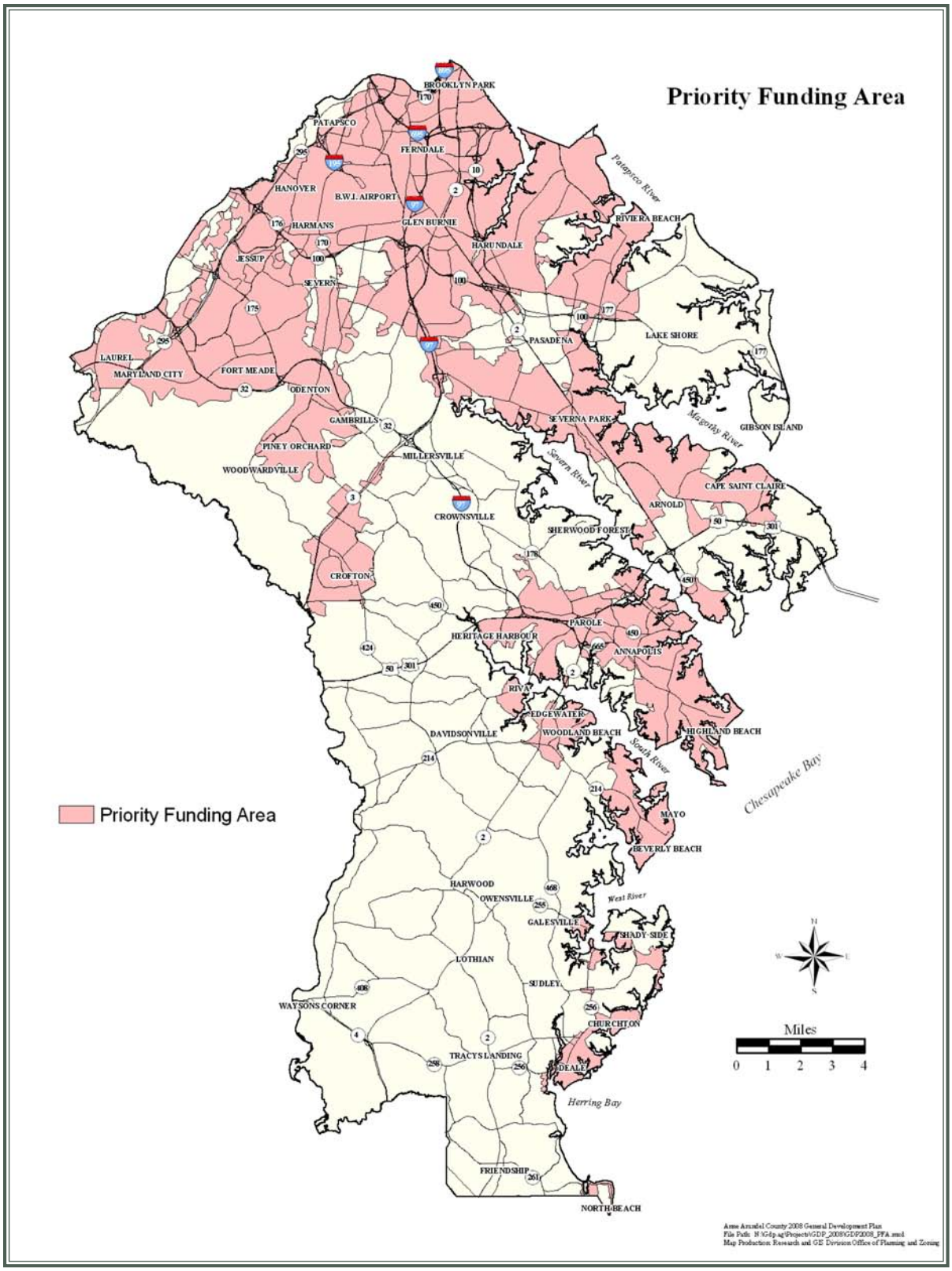


Figure 2–2 Priority Funding Areas



is approximately 32,400 acres in size and is located in South County. The Rural Legacy Program works in conjunction with the County's Agricultural and Woodland Preservation Program as well as the State' Agricultural Land Preservation program to preserve rural areas and promote agricultural uses.

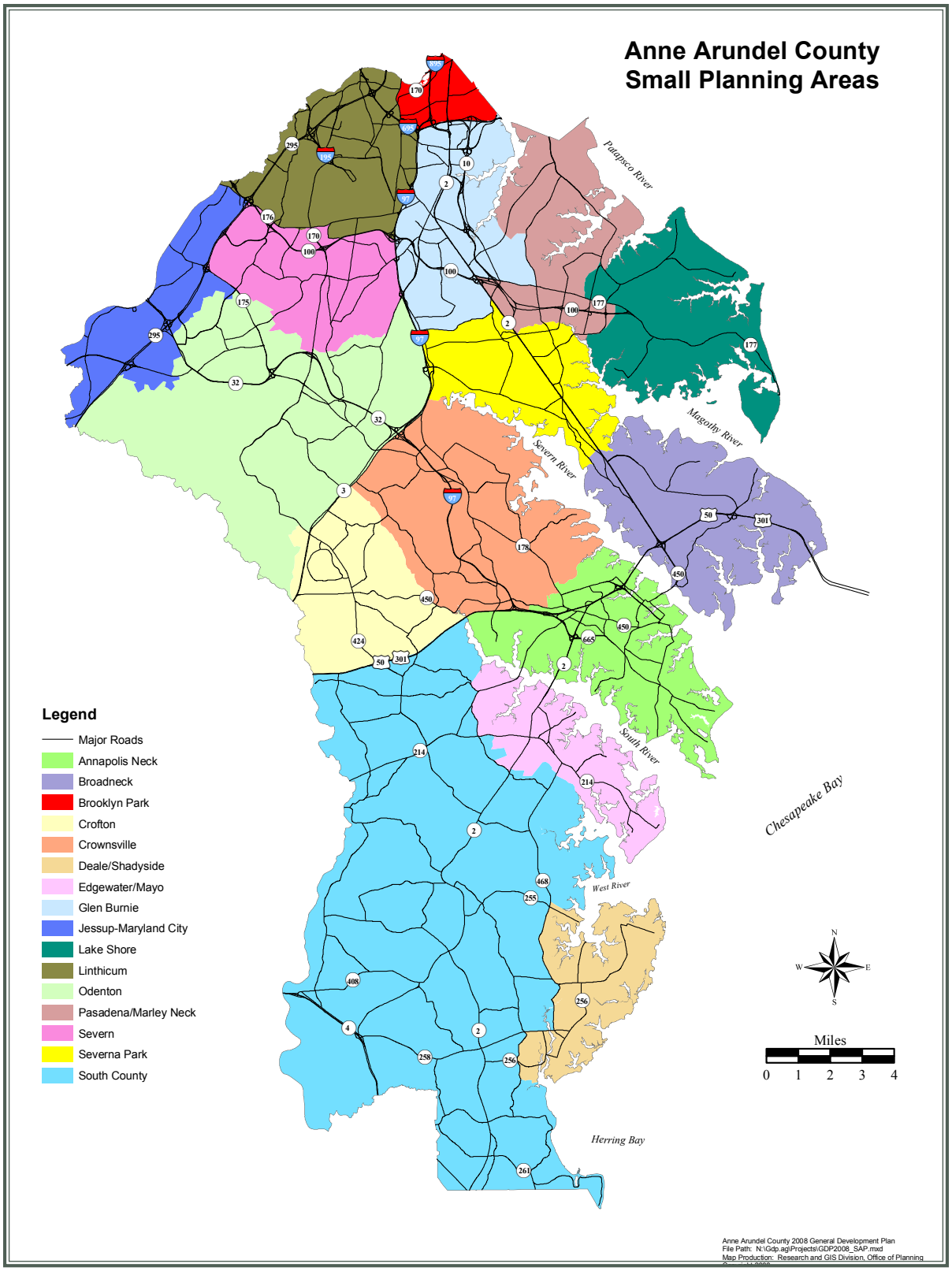
In 1998, the County also embarked on its Small Area Plan (SAP) program. These sixteen community-based plans, shown in Figure 2-3, were prepared with an extensive amount of public outreach between 1998 and 2004. The plans serve to guide how individual properties should be used and what facilities may be needed to serve the County's communities. The plans also served as a vehicle for refining the 1997 Land Use Plan, and the individual land use plans contained in each SAP have been consolidated to form the County's current 2004 Land Use Plan. Each Small Area Plan was followed with comprehensive zoning legislation to rezone properties according to the adopted Land Use Plan. The County will continue to implement the many Small Area Plan recommendations over the coming years.

The 1997 GDP and subsequent Small Area Plans also identified areas where mixed use development should be encouraged, incorporating a variety of residential, office and retail uses in close proximity. Four new Mixed Use Zoning categories were added to the Zoning Ordinance in 2001, and since that time several properties have been rezoned and some mixed use developments are in the planning and/or construction stages.

In 2001 the County added the Annapolis, London Town and South County Heritage Area Management Plan to its planning documents used to guide future land use. Also known as the Four Rivers Heritage Area, this is a State-certified Heritage Area that extends from US Route 50 to the north to MD Route 2 to the west and Calvert County to the south. Funded primarily with operating and program assistance from the Maryland Heritage Areas Authority, Anne Arundel County, and the City of Annapolis, Four Rivers develops and supports activities that combine tourism and small business development with education, historic preservation, cultural and natural resource conservation, and recreation in a strategic effort to enhance the community's economy and culture.

Following on the GDP goal of enhancing existing communities, legislation was adopted in 2001-2002 establishing sixteen Commercial Revitalization Districts along many of the County's older commercial highway corridors and within older neighborhood centers. The Commercial Revitalization Program provides greater redevelopment opportunities by allowing property tax credits and a greater mix of uses in the designated districts.

Figure 2–3 Small Planning Areas



In response to another GDP recommendation and to help protect important natural resources, the County prepared a master plan to develop a countywide greenways network. The Greenways Master Plan was adopted in 2002 with the goal of establishing an interconnected network of protected corridors of woodlands and open space that will protect ecologically valuable lands, provide open space and recreational benefits, and preserve wildlife habitats. The proposed greenways network covers nearly 72,000 acres of land and approximately 50 percent of the network is protected either under State, Federal, or local government ownership, under agricultural or environmental easements, as private conservation land, or under Open Space zoning regulations.

The County also prepared an updated master plan to guide development in the Odenton Growth Management Area. The Odenton Town Center Master Plan was adopted in 2003 and establishes development and zoning regulations and guidelines to promote an attractive, viable and pedestrian friendly Transit Oriented Development center near the Odenton MARC rail station.

The County also established an Urban Design Study work program in 2007 that will explore alternatives for revitalizing and improving several targeted commercial hubs or corridors around the County. The program will develop urban design concept plans for these areas to help implement some of the recommendations in the General Development Plan and Small Area Plans. The design concepts may include redevelopment, façade improvements, streetscape improvements, public spaces, or other features as well as funding or revitalization strategies.

Finally, the County undertook a multi-year project of developing a more refined property geodatabase of all recorded properties in the County. This analytical tool has been extremely useful in land use planning efforts, both in terms of conducting analysis as well as enabling the County to prepare and adopt more accurate land use and zoning maps. The process of refining the County's various data layers and products using this tool will continue on for several years.

Through these efforts and others, the majority of the 1997 GDP land use recommendations have been implemented. Many of these programs are multi-year or ongoing programs and will continue into the future as needed.

Major Trends for the Next 10 Years

One of the most significant events anticipated in the County in the short term is the Federal Base Realignment and Closure (BRAC) Initiative. As a result of this nationwide study of military bases, a number of federal positions are planned for relocation to the Fort George G. Meade military base in Anne Arundel County. It is anticipated that this

relocation effort will bring both additional jobs and households to the County as well as to the region in general.

It is estimated that 22,000 new jobs will locate in Anne Arundel County as a direct result of BRAC: 5,695 new defense positions; 4,000 new jobs due to expansion of the National Security Agency; 10,000 new jobs to be located at a planned secured office complex to be developed under an Enhanced Use Lease (EUL) on the Fort Meade base; and 2,000 additional jobs attributed to government contractors or other service providers who will locate in the County as a result of the base realignment. Most of this job relocation and expansion will occur within the next five years, or by the year 2012 to 2014 timeframe. Many of these jobs are expected to be highly paid positions in information technology and related fields.

It is estimated that 22,000 new jobs will locate in Anne Arundel County as a direct result of BRAC.

In addition to the anticipated job growth, the State has estimated that over 28,000 new households will locate in Maryland as a result of BRAC. It is projected that approximately 4,500 of these households will locate in Anne Arundel County, with the remainder locating in Harford, Baltimore, Montgomery, Cecil, Prince Georges, and Howard Counties and Baltimore City. It is anticipated that approved residential units in the development pipeline combined with development projects in the planning stages will provide sufficient housing capacity in the County to serve this BRAC-related growth. However, the County will continue to assess and plan for the potential impacts on public facilities and infrastructure such as State and local highways.

In the longer term, beyond the 20 year planning horizon, the land use planning priorities in the County are likely to gradually shift from a focus on new development to a focus on redevelopment and revitalization, as the County matures and as vacant land for development becomes scarcer. While the existing development capacity is expected to be adequate to serve new growth over the 20 year horizon, any significant increases in capacity in the future would likely require shifts in existing land use policies.

Along with these changes, a priority for both the short and long term is strategic planning for water resource protection and a focus on mitigation to address the impacts of existing and planned land uses on water resources. In light of new State limits on pollution loads that can be received by area tributaries, future land use plans and policies will have to account for and address watershed impacts. This topic will be covered in full in Chapter 10.

Vision for 2009 and Beyond

As mentioned above, the County completed and adopted sixteen Small Area Plans between 2000 and 2004. Each of these plans contains a vision for that planning area, prepared with input from the public as well as advisory committees, and represents those future

conditions desired by the citizens. Since that planning program was completed fairly recently and with a significant amount of public outreach, it was decided that the visions adopted through that process should serve as the starting point for this GDP update.

As expected in a county as large as Anne Arundel, there is some variation among the different community visions. While residents of Brooklyn Park and Glen Burnie want to see revitalization of commercial corridors and improved community facilities and infrastructure, the residents of South County and Crownsville are more focused on retaining their rural communities and identity. In those areas that have experienced more growth recently, such as Odenton and Jessup, the citizens tend to rank balancing land uses, provision of adequate public facilities, and multimodal transportation connectivity as high priorities. Communities along the County's peninsulas and waterfront areas often name watershed protection and preserving community character as key aspects of their visions.

However, throughout all of these community visions there are overarching priorities, or themes, that are heard throughout the County. These collectively can form a vision for the entire County that, if achieved, will serve the interests and hopes of all citizens in all communities. These themes are summarized as follows:

Balanced Growth and Sustainability: Citizens recognize the importance of economic vitality and a strong job market as well as that of preserving open spaces. They value the benefits of thriving town centers but also those of small and peaceful rural communities. Some want to live in townhome developments with lots of services nearby; others prefer more suburban-style neighborhoods of single family bungalows and quiet backyards. They want the County to achieve the best balance of land uses possible, so that all citizens can experience and sustain a high quality of life.

Community Preservation and Enhancement: Community character and neighborhood conservation are terms that are heard frequently by county planners when working with local citizens. People choose to move to a neighborhood, or buy a home there, because they like the character of the community. They want to preserve the County's unique and distinct communities, to retain and improve housing in older communities, to enhance older and underutilized commercial centers, to preserve the viability of long-standing agricultural areas, and to protect the County's cultural heritage.

Environmental Stewardship: Regardless of where one is in the County, local citizens will name environmental protection as one of their top priorities. They understand the importance of natural resource conservation and watershed protection on a local level, as it contributes to our quality of life; on a regional level, as the State and counties work collectively to protect the Chesapeake Bay; and also on a global level, as resource conservation increasingly becomes a priority for the

entire planet. They look to the County government to lead by example and to act as a true steward of the environment.

Quality Public Services: The public services that local citizens rely on every day – schools and libraries, senior centers and health centers, parks and recreational programs, water and sewer service, police and fire protection and emergency services, and a reliable transportation network – have a direct influence on their quality of life. Citizens in all parts of the County talk about the importance of these services, not only in terms of their individual well-being but also in making their communities attractive and desirable places to live. They want high quality public services that make them proud of their communities and of the County and that support the local and regional economy.

This is the County's vision for 2009 and beyond. The following four chapters will address each of these themes in more detail and will lay out specific goals, policies, and actions that together will move the County toward realization of this vision.

Community Vision

Chapter 3: Balanced Growth and Sustainability

Balancing Land Use, Growth and Fiscal Policies

Current Land Use Pattern

A key objective of comprehensive planning is to promote the appropriate amount and type of growth that will result in attractive and vibrant communities, a strong local economy, and stable fiscal conditions, as well as to achieve the best possible balance between growth and land preservation. The County has worked toward this objective since the adoption of its first comprehensive plan in 1968 and particularly since passage of the Smart Growth legislation in the 1990s.

Table 3-1 and Figure 3-1 below present the 2004 Land Use Plan (shown in Figure 3-2) by acreage and land use category with typical residential densities in dwelling units per acre (du/ac). Currently, over half of the County's land area (52%) is planned for rural or low density residential uses. When combined with land designated as Natural Features (open space and environmental preservation areas), the percentage increases to nearly 70% of the total land area. Low-medium to high density residential uses account for 13% of the land area on the 2004 Plan, and areas planned for commercial and industrial uses combined account for only 6% of the land area. The mixed use and town center categories combined account for less than 2%. Government and institutional areas account for another 6% of the land area, and the remaining 4% is used or planned for transportation and utility uses.

This 2004 Plan illustrates to some extent the challenges of implementing Smart Growth policies in a suburban jurisdiction. While the Land Use Plan allocates a large proportion of acreage for lower density residential land use (one half acre to five acre lots), which is often considered by planners to promote "sprawl" and not "smart growth", it must be recognized that this land use pattern reflects to a large extent the community vision that has existed in the County over the past decades and that still exists today. In most of these established communities, residents feel strongly that they want to preserve their community's character.

Therefore, the County has taken steps to concentrate new growth in defined areas since the 1980s. At that time, the allowable development densities in the County's Rural areas were lowered to one lot per 20 acres with the intention of maintaining the rural character. During the same period, Parole, Odenton, and Glen Burnie were designated as town centers to serve as major activity hubs. In the 1990s, the County designated Priority Funding Areas in which to concentrate new growth, and later designated mixed use areas where higher density land uses could be concentrated. The 2009 GDP follows in that trend by continuing to concentrate new growth in specific target areas, and maintaining the rural areas intact. Specific development policies for targeted growth areas, managed growth areas, and rural areas are presented in Chapter 7.

Table 3–1 2004 Land Use Plan Categories by Acres

Land Use Plan Category	Number of Acres	Land Use Plan Category	Number of Acres
Residential Categories		Mixed Use Categories	
Rural (1 du/5 ac – 1 du/20 ac)	88,958	Residential Mixed Use	507
Low Density (1-2 du/ac)	47,770	Commercial Mixed Use	178
Low-Medium Density (2-5 du/ac)	20,430	Employment Mixed Use	245
Medium Density (5-10 du/ac)	10,967	Transit Mixed Use	140
High Density (>15 du/ac)	2,704	Town Center	2,515
Commercial Categories		Other Categories	
Commercial	5,023	Natural Features	44,951
Small Business	60	Government/Institutional	16,104
Industrial	10,525	Transportation/Utility	9,699
Maritime	464	City of Annapolis	4,534

Figure 3–1 2004 Land Use Plan Category by Acreage Share

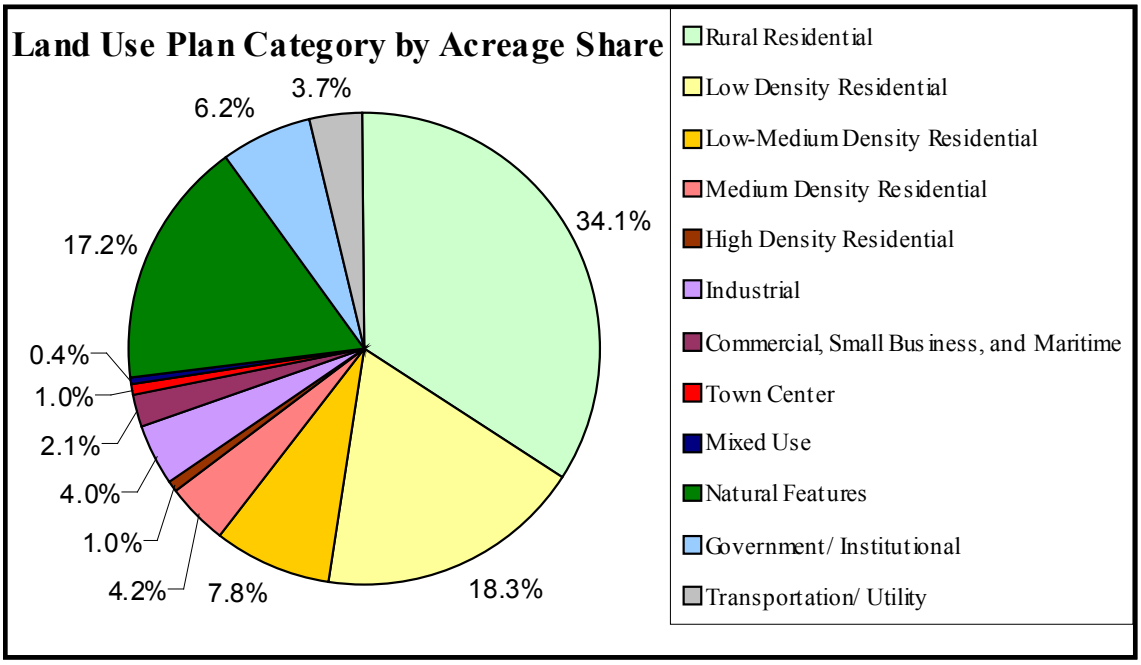
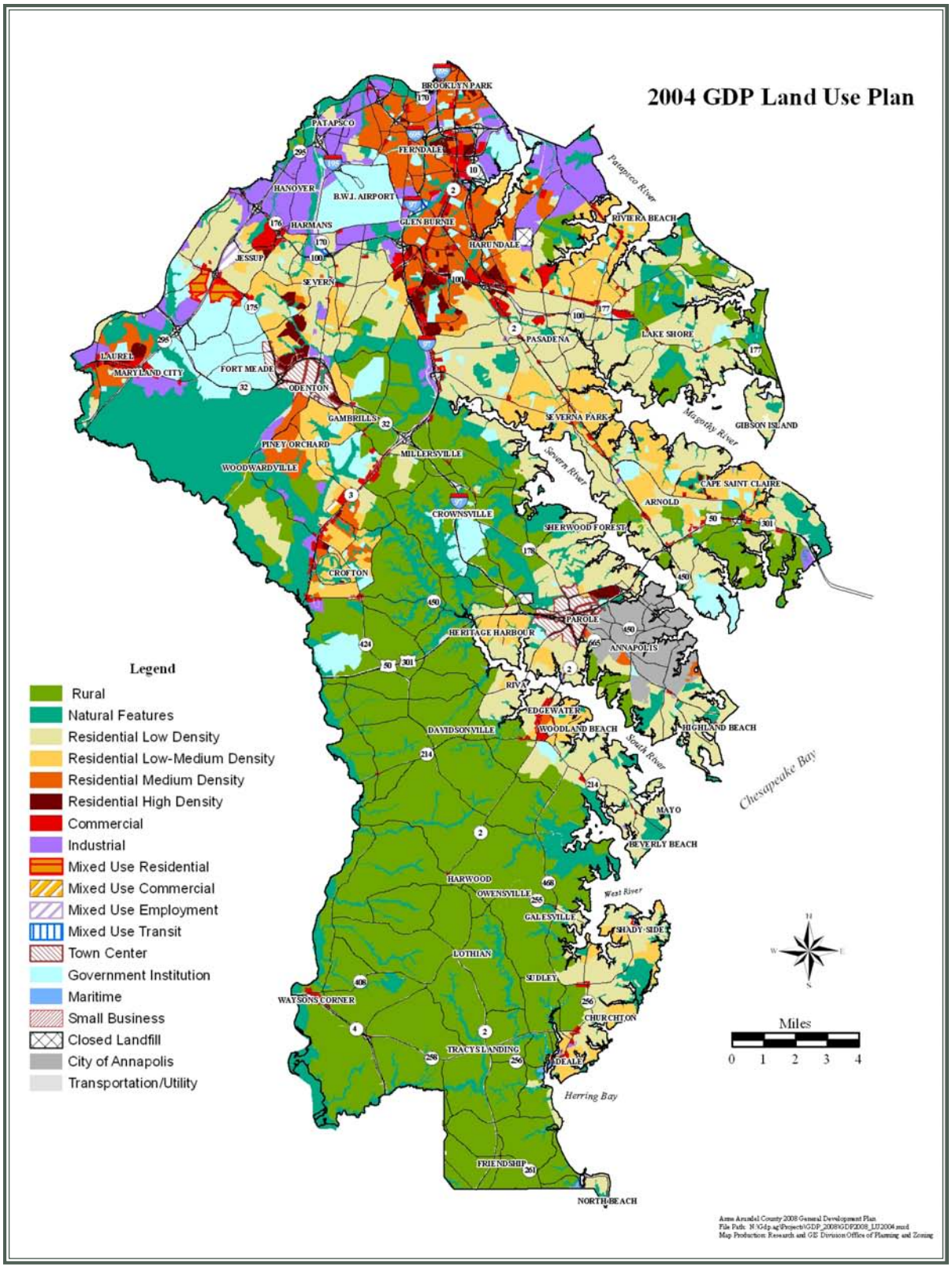


Figure 3–2 2004 GDP Land Use Plan



Development Holding Capacity

The land use policies that maintain the County's rural land base and concentrate new growth in specific areas have consequences in terms of the long range ability to absorb new growth, and these policies place limits on future development capacity. This is not a negative consequence in itself, but is reflective of the fact that these land use policies incorporate local community visions and desires. However, decisions to hold to these land use policies and to allow development capacity to reach its limits also have implications for the County's long term fiscal stability and require the appropriate fiscal policies that will work in conjunction with established land use policies.

A land use analysis was recently completed estimating the remaining development capacity in the County as of April 2008. The methodology and assumptions used are discussed in the GDP Background Report on Land Use (June 2008). It should be noted that for the purposes of this analysis, active development projects (projects under review) and projects in the pipeline (approved and platted, but not yet constructed) were considered as developed land and did not count towards available development capacity. The results of the analysis should be considered conservative as assumptions were made based on previous development trends in the County. As land becomes more scarce, development becomes more efficient, utilizing available capacity to its limits. The results shown in Table 3-2 indicate the County has capacity for approximately 26,000 additional residential units under the current zoning. Most of this additional capacity exists in the low to medium density residential zones (R2 and R5, and to a lesser extent R1). In addition, most of the available capacity can be attributed to vacant parcels or lots, although there is a significant amount of redevelopment capacity in the residential zones, particularly in the R5 zone. Much of the development capacity in the R5 zone is located in Brooklyn Park, Glen Burnie, Pasadena, and Arnold, while much of the capacity in the R2 zone is located in Severn and Pasadena.

Table 3–2 Residential Development Capacity (Units)

Zoning Category	Potential Residential Units Available from			Total Units
	Vacant Lots	Antiquated Lots	Redevelopment	
RA	1,480	110	360	1,950
RLD	440	170	160	770
R1	1,860	350	1,710	3,920
R2	2,300	1,690	2,480	6,470
R5	3,140	1,590	4,710	9,440
R10	940	0	0	940
R15	1,160	10	0	1,170
Additional Potential Units*	N/A	1,730	N/A	1,730
Totals	11,320	5,650	9,420	26,390

** Development potential could not be estimated for all antiquated lot records due to incomplete database fields. Development potential was estimated for a sample of 28% of the incomplete records and was extrapolated to the entire set of records.*

The development capacity analysis also estimated commercial and industrial development capacity. There are approximately 18,600 acres of land in recorded properties within the commercial and industrial zoning categories, and over 12,400 acres or 67% are developed or undevelopable. The total amount available for either development or redevelopment is roughly 6,200 acres, of which approximately 3,400 acres are vacant and developable and 2,800 acres are underdeveloped.

The industrial districts have the most available capacity, primarily in the W1 district located around the BWI Airport, in Hanover, Glen Burnie, and near Fort Meade. The majority of available commercial land is in the C3 and C4 zoning districts, which allow large-scale commercial uses. However, most of the land consists of relatively small properties that are less than 2 acres in size. There is potential for consolidation of some of these properties to facilitate commercial development that serves a broader market.

Approximately 55% of the land in the Odenton Growth Management Area is developed. The remaining 45% is available for development and is one of the County's priority target areas for new growth given its public transit opportunities and its proximity to Fort Meade. The mixed use, maritime, and town center districts have very little land available for new development.

When the development capacity results are evaluated with the forecasts developed by the County, it provides a look at when the County might approach the limits of its ability to absorb new growth under current policies. Based on recent estimates of future growth in households and jobs, the County may see an increase in households of approximately 25,000 over the next 12 to 15 years, and an increase of 80,000 jobs as well. Based on these assumptions, the development capacity results indicate that by 2020 to 2025 the

County could reach maturity in terms of new growth and may need to consider the need for additional capacity, as well as to prepare for this shift from a growing population to a relatively stable one.

Many important factors must be taken into consideration when making these decisions, including infrastructure constraints (e.g. wastewater treatment plants, school capacities), environmental constraints (e.g. pollutant loads and impacts on natural resources), the ability to provide public services (e.g. fire protection, recreation), potential impacts on community character, fiscal impacts, and changes in development patterns. Due to the limiting nature of these constraints and the fact that some of them have State mandates for compliance, it is uncertain if the County will be able to upzone a significant amount of land area in the future to create more capacity. The implications physically and fiscally to the County are complex and require detailed analysis and discussion by the policy makers.

Fiscal Impact of Growth

To help answer some of these questions, the County undertook a comprehensive Fiscal Impact Analysis completed by an outside consultant in 2008. There were two key questions to be answered by this study: 1) under the current revenue structure, is new growth generating net surpluses or deficits; and 2) how does the fiscal picture look when the demands of serving new growth are combined with those of serving the existing population and employment base? Therefore the study was conducted in two phases. The first phase analyzed both operating and capital costs and revenues generated by new growth only (growth projected to occur in the future based on current trends). The second phase combined the fiscal impacts of new growth with the costs to serve the existing population and employment base.

The results of Phase I indicate that, under the County's current revenue structure, and using the new impact fee rate schedule adopted in 2008, new growth in population and employment generates net surpluses to the County. In other words, the net revenues generated by new growth outweigh the costs that the County incurs in providing public services to serve it. This is due to the County's very aggressive revenue structure. Like most counties in Maryland, Anne Arundel County receives property tax, income tax, franchise fees, transfer and recordation taxes, and impact fees from new growth. By comparison, in most states local governments typically rely on property tax only.

Fiscal policies must be consistent with land use policies.

Nevertheless, the analysis of new growth alone does not paint the entire picture. Under Phase II of the study, when the net surpluses from new growth were layered onto the impacts of serving the existing population and employment base, the annual net fiscal results fluctuate between deficits and surpluses over the study horizon (2007-2025), with net deficits generated over the first half of the projection period and net surpluses

generally toward the end. The conclusion reached is that under the current revenue structure and assuming current levels of service, the County is in a sense treading water, with annual revenues insufficient to cover the estimated costs of providing public facilities and infrastructure on a consistent yearly basis.

It is noted that there are inherent limitations with this type of fiscal analysis, and the results must be interpreted accordingly. The fiscal model does not factor in externalities such as social or environmental costs related to additional growth, and it assumes existing levels of service for each category of public services, regardless of whether that level of service is considered to be adequate by the users. In addition, costs that are more indirectly related to new growth, such as costs to meet future water quality regulations through improvements to stormwater management facilities, cannot be easily quantified with this type of fiscal model and must be accounted for separately.

The Phase II study also looked at the extent to which surpluses from new growth can help to reduce existing backlogs in the County's capital budget. Over the years, due to rising construction costs and other factors, the County has struggled to keep pace with the ongoing demand for maintenance, renovation and rehabilitation, and replacement of existing infrastructure and facilities that have been in place to serve the existing population and employment base. Therefore, the County is experiencing some significant budgetary backlogs related to these public facility and infrastructure costs. This phenomenon is not unique to Anne Arundel County and indeed has become a nationwide cause of concern. Futhermore, the current economic downturn was not predicted in the Fiscal Impact Analysis. The ability of the County to generate new revenue sources to address the deficit and surplus imbalance identified in Phase II of the study will be dependent on the recovery from the current recession.

The study analyzed the estimated costs to correct the budget backlog in infrastructure needs (including schools, parks, roads, community college, libraries, senior centers, health centers, police and fire facilities, and detention centers) and combined this with the previous results. The backlog costs are significant, totaling over $2 billion for the 18-year study period. The net surplus generated by growth is projected at almost $500 million over the same period, which is only about 20% of the backlog costs. In other words, under current growth trends and existing fiscal policies, the County will continue to carry these backlogs in infrastructure needs well beyond the 2025 timeframe.

The solutions to these issues will not be simple ones. One conclusion that can be drawn is that long term fiscal stability cannot be created by relying on new growth and cannot be achieved by making changes to the adopted Land Use Plan. While the anticipated growth that can be accommodated within the remaining development capacity will help the fiscal

situation to some extent by providing some revenue surplus, it will not address the existing infrastructure backlogs. In addition, growth rates in the County are declining over the long term. Even if growth rates were to rise again, the County may not be able to accommodate much new growth beyond the 2030 timeframe due to limits on infrastructure capacity as well as development holding capacity.

Likewise, slowing growth to a halt will not create long term fiscal stability either, without a shift in current fiscal policies. Long term stability can more realistically be addressed through improved concurrency management, which ensures that available capacity of public facilities and services will be in place over the planning horizon, and through new or revised revenue strategies. Both of these will be discussed further in Chapter 11.

The following goals, policies and actions will help the County to achieve balanced growth and sustainability.

Goal: Establish and maintain a Land Use Plan that achieves Smart Growth goals, balances growth and preservation, and provides a high quality of life.

Policy 1: Direct development and redevelopment to the County's targeted growth areas: Town Centers, commercial revitalization districts, and Mixed Use Districts.

Actions:

- Use incentives, such as financing tools and / or an expedited development review process, to encourage new growth to locate in targeted growth areas.
- Strengthen marketing programs to attract developers and businesses to targeted areas by preparing a comprehensive inventory of available sites, incentives, and amenities.
- Prioritize the Capital Program to promote adequate public facilities and infrastructure necessary to support development in targeted growth areas.
- Add to the legal and financial tools that enable private-public partnerships that provide future development guarantees in return for substantial investments in necessary infrastructure where the County's Capital Program is insufficient to support new development. Examples include tax increment financing, special tax districts, and developer agreements.
- Consider the use of Special Tax Districts for targeted growth areas, as applicable, so that infrastructure needs could be advanced through a special fund and a dedicated revenue source would be available for amenities such as transit improvements.

Policy 2: Encourage infill development inside the County's Priority Funding Areas (PFAs) where appropriate, as opposed to expanding the PFA.

Actions:

- Identify key infill opportunity sites and assess their feasibility for appropriate land uses.
- Use strategies such as tax incentives, financing tools, or revisions to development regulations to encourage the most compatible type of infill development in these areas.

Policy 3: Encourage mixed use development with jobs, housing, shopping, transportation and other services within walking distance. Mixed use sites should be planned to meet the key objectives of improving "live near your work" opportunities, increasing use of public transit, and/or increasing the supply of workforce housing. Mixed use sites should not be planned for the sole purpose of increasing allowable development densities.

Actions:

- Identify additional mixed use opportunity areas and work with property owners and developers to develop mixed use concept plans that are consistent with overall community visions.
- Assess the potential to shift some of the existing industrial land base west and north of BWI Airport to mixed use categories, to provide additional housing opportunities, commercial services, and transit-oriented development near major employment areas. Constraints due to the airport noise zone and approach zones must be considered.

Policy 4: Promote redevelopment of brownfields sites.

Actions:

- Maintain an inventory of brownfield sites and provide financial incentives through Maryland Department of the Environment to leverage private sector investment. Actively market sites as redevelopment opportunities.
- Monitor the status of the U.S. Army Depot site, the DC Children's Center site, the David Taylor Naval Research Center site, and the Crownsville Hospital site, and work with State and/or Federal officials to identify suitable redevelopment opportunities if the sites become available.

Policy 5: Encourage the best use of unused or underutilized properties in the County's surplus property inventory. When surplus properties designated as "Government" on the adopted Land Use Plan are sold for private development, no change in zoning of the property will be adopted without first amending the Land Use Plan to reflect the future planned land use.

Actions:

- Continue to review all County and Board of Education surplus properties in accordance with the General Development Plan, Small Area Plans, and other adopted Plans, to determine whether there is a current or long range need to retain the property for public use.
- Convert surplus property to preserved open space or recreational space where appropriate.
- Keep local land trusts informed of surplus properties in environmentally sensitive areas.

Goal: Establish cohesive land use policies and fiscal policies that collectively will achieve sustainable communities, efficient use of public facilities, and fiscal stability.

Policy 1: Future increases in development capacity should be consistent with adopted land use policies.

Actions:

- Track development holding capacity regularly and update the holding capacity inventory at appropriate intervals.
- Plan for adjustments in fiscal policies and revenue strategies that will be needed as the County matures and approaches the limits of its development capacity.

Policy 2: Plan for the provision of public facilities, infrastructure, and services so that the County will be able to maintain a high level of service to serve the existing population as well as new growth.

- Develop an ongoing methodology to better integrate strategic and facilities planning done by each County agency or service provider with the County's long range land use planning and capital programs.
- Develop a comprehensive concurrency management program in order to track the impact of new growth on public facilities and infrastructure and to ensure adequate facilities will be in place to serve new growth as well as the existing population base.
- Evaluate all potential new revenue strategies to address existing budget backlogs in public facility maintenance and improvements.

Balancing Economic Development Opportunities

Anne Arundel County's economy is one of the strongest in Maryland. This vibrant economy is driven by the following combination of elements:

- A diverse, world class business community with strong emphasis on technology that interacts with regional, national, and global markets;
- Excellent transportation connections to regional, national, and global markets;
- A world class workforce of highly educated and highly skilled people; and
- The Chesapeake Bay shoreline, Historic Annapolis, the Naval Academy and many scenic waterfront areas that make Anne Arundel County an attractive location for residents and visitors alike.

The County's strong economy is evidenced by its continued strong job growth. The County has consistently been gaining an average of 5,000 new jobs per year. Between 1990 and 2000, employment in the County grew by 18% from approximately 252,000 jobs to nearly 298,000 jobs; representing one of the strongest job growth rates in the Baltimore region. The County gained an additional 21,000 jobs between 2000 and 2005, and job growth is expected to continue over the next two decades, with 22,000 new jobs expected to locate in the County by 2015 as a direct result of BRAC.

Of course, the current downturn in the national economy will potentially impact job growth in the greater Baltimore-Washington area including Anne Arundel County. Currently the impact in the central Maryland region has not been as significant as in other parts of the country, though short term effects are difficult to predict. For the purposes of long range planning, it is assumed that the economy will stabilize over the next few years and that economic growth will continue over the long term.

Current employment in Anne Arundel County is distributed over a wide range of industrial sectors. Sectors such as aerospace and defense, science and technology, health care, manufacturing, wholesale trade, support services and construction have led business growth in the County since the year 2000. The technology sector, for example, grew by 11% between 2000 and 2005 and employs over 18,000 people. This sector will continue to grow along with other defense-driven industry due to the location of Fort Meade, the

National Security Agency (NSA), the U.S. Naval Academy, and the many defense contractors located in the County. Recent and planned expansions of the Anne Arundel Medical Center in Parole and the Baltimore Washington Medical Center in Glen Burnie will promote continued growth in the health care industry as well.

The County has targeted five primary growth areas for future economic development:

- The BWI Airport Business District and vicinity,
- The Baltimore Washington Parkway corridor and Fort Meade,
- Odenton Town Center,
- Parole Town Center, and
- Glen Burnie Town Center.

A variety of programs focus on attracting not only major industry targets such as defense and technology, but also the smaller economy sectors. These smaller sectors also contribute to the County's vitality as well as its heritage, including tourism, agriculture, the maritime industry, and arts and entertainment. These programs include business financing assistance, workforce development, small business development, technology development, and other strategies.

Ensuring that Anne Arundel County's strong business climate continues and that the County remains a leader in all respects is a priority. The following goals, policies and actions will serve this objective.

Goal: Maintain a favorable climate to attract and retain diverse business and industry to provide jobs, income and tax base, to achieve sustained and diversified growth, and to allow the County to meet the needs of its citizens.

Policy 1: Actively promote retention and expansion of existing businesses through financial assistance, employee training and other incentives.

Actions:

- Implement a proactive business development plan to encourage the location of new companies in the County.
- Partner with Anne Arundel Workforce Development Corporation and Anne Arundel Community College as well as State and regional partners to address the workforce development needs of the existing business community and to provide training programs in the field of science, technology, aerospace/defense and other areas to address global market needs.

- Work with local employers to provide job training and readiness programs as well as support services such as child care and transportation to ensure local residents can take advantage of employment opportunities in the County.
- Continue to provide business financing assistance through the Anne Arundel Economic Development Corporation, State Department of Business and Economic Development, and Department of Housing and Community Development.
- Expand and support industrial and business growth by combining public and private resources.

Policy 2: Focus economic development and business attraction efforts in Town Centers, Mixed Use Districts, and Commercial Revitalization Districts as well as in areas with existing or planned transit access.

Actions:

- Focus economic development efforts toward development of the Odenton Town Center as a premier transit-oriented center in accordance with the goals and vision of the OTC Master Plan.
- Assist private developers in attracting high quality businesses to new and developing mixed use centers in the County.

Policy 3: Maintain an adequate supply of land for industrial and commercial office uses to meet current employment projections including new BRAC-related job growth, and to maintain a balanced tax base.

Actions:

- Identify opportunities for additional industrial sites, particularly for new defense industry and research facilities, located in proximity to major roadways and other multi-modal transportation assets.

Policy 4: Increase opportunities for business innovation entrepreneurship.

Actions:

- Provide services and support, such as assistance with preparing business plans, to the entrepreneurial, small, and minority business community.
- Continue to promote and support the business incubator concept.

Policy 5: Further develop the agricultural economic development and marketing program within the Anne Arundel Economic Development Corporation.

Actions:

- Expand the program to promote rural economy land uses such as horse breeding and training, vineyards, community gardens, agritourism, heritage tourism, and crafts in designated rural areas.

Goal: Protect the future growth potential of BWI Airport.

Policy 1: Promote development in the vicinity of BWI Airport that is compatible with an airport environs and that will not restrict the future growth potential of the airport.

Actions:

- Work cooperatively with Maryland Aviation Administration to study the feasibility and applicability of an Airport Environs Overlay Zoning District to promote compatible land use development in proximity to BWI Airport.

Balancing Housing Opportunities

Housing Overview

The strong economic growth experienced during the 1990s translated into a strong housing market in Anne Arundel County. While the recent economic downturn will have an effect on the housing market in the near term, it is expected that growth in households will continue, although at a slower rate, to 2025. This includes a projected 4,500 households that will locate in the County over the next several years as a direct result of BRAC. A range of housing opportunities will be needed to meet these demands.

According to the 2006 American Community Survey (U.S. Census Bureau), there are approximately 201,000 housing units in the County. The mix of housing of types is shown below. The dominance of the single-family detached home is reflective of the suburban nature of Anne Arundel County.

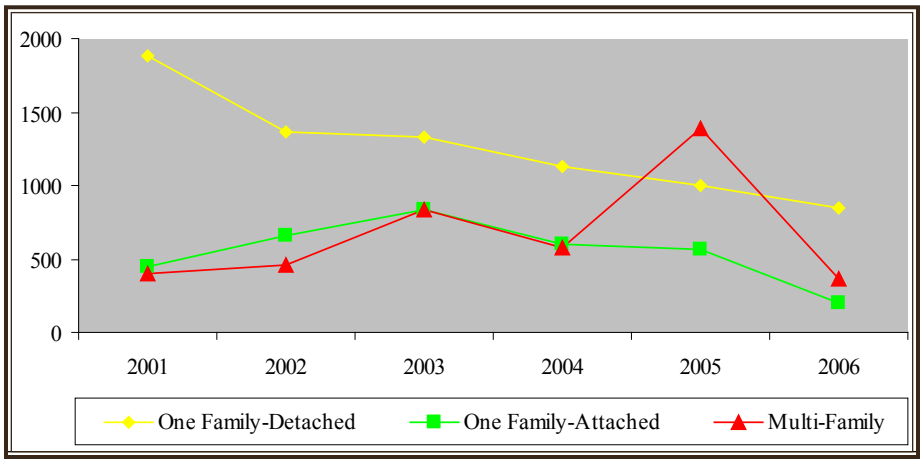
- 62% are single family detaches homes,
- 18% are townhomes or duplexes,
- 17% are condominiums or apartments,
- 3% are mobile homes, recreational vehicles or houseboats.

The popularity of "adult" developments has grown in recent years as well. The County defines "adult independent living" units as independent dwelling units for persons 55 years of age or older without minor children. Within the past five years, nearly 1,200 additional age-restricted units were either approved for construction or are waiting development plan approval. In addition to age-restricted units, there are approximately 86 State licensed assisted living facilities.

Residential Building Trends

Between 2001 and 2006, the County issued nearly 14,900 residential building permits. As seen in Figure 3-3 below, approximately half (7,500) were issued for single family units. Permits for multifamily and one-family attached units were issued at almost equal pace during the same period with the exception of 2005, when nearly 1,400 multifamily units were issued. The spike in 2005 was primarily due to the new Arundel Preserve development and new sections of the Seven Oaks development. Data indicate that the number of permits issued annually for single-family detached units has declined steadily from approximately 1,880 in 2001 to approximately 850 in 2006, reflecting in part the maturing nature of the County.

Figure 3–3 Residential Building Trends in Anne Arundel County, 2001 - 2006



The current downturn in the housing market will certainly have an impact on home building and construction over the short term. According to Metropolitan Regional Information Systems (MRIS) data, the 6,500 units sold in the County in 2007 represent a decrease of 17% from the prior year, and it is expected that homes sales for 2008 will also decrease. Such declines are occurring not only in Anne Arundel County, but nationwide. However, it is assumed there will be a market correction followed by continued growth in the County and the Baltimore-Washington region over the long term.

Housing Affordability

In the decade prior to 2007, housing prices escalated as developers constructed more expensive single-family homes to meet the demands of a more prosperous economy. In 1995, the median sales price of a home was $141,016. By 2007, the median sales price had increased to $340,000. In contrast, the median income did not increase at the same pace, presenting a challenge for persons who wished to purchase a home within their affordable range. According to the 2006 American Community Survey, the median household income was $79,160 and, an estimated 29% of total County households earned less than $50,000 annually.

This has resulted in a growing affordability gap between household income and the availability of housing at moderate prices. The inventory of homes available at prices that

would be considered affordable for workforce households has been on the decline over this period and is now recognized to be seriously inadequate to serve the workforce population.

The rental housing market has experienced many of the same trends as the homeowner housing market. The average rental rates shown in a 2007 Apartments Study for Anne Arundel County range from about $800 for a one bedroom to $1,300 for a three-bedroom apartment, but can be higher in specific locations. This likewise presents a challenge for workforce households.

Addressing Workforce Housing Needs

The State of Maryland has provided the following definitions for workforce housing:

> "Affordable" means that housing costs do not exceed 30% of household income.
>
> "Workforce housing" means:
>
> **Rental housing** that is affordable for a household with an aggregate annual income between 50% and 100% of area median income.
>
> **Homeownership housing** is affordable to a household with an aggregate annual income between 60% and 120% of area median income or in target areas recognized by the State. For the purposes of the MD Mortgage Program, it is affordable to a household with an aggregate annual income between 60% and 150% of the area median income.

In recognition of the statewide shortage of working housing opportunities, the State of Maryland enacted legislation in 2006 establishing a Workforce Housing Grant Program. Local jurisdictions may qualify for participation in the program if they have a five-year Consolidated Plan approved by the U.S. Department of Housing and Urban Development (HUD), or if they include a workforce housing element in their adopted comprehensive plan. The Anne Arundel County Consolidated Plan: FY 2006 –FY 2010 was adopted by the County Council in 2005 and serves as the County's HUD-approved Consolidated Plan. The County will therefore be eligible to participate in the State's Workforce Housing Grant Program as grant monies become available.

To address housing and community development needs and implement strategies of the Consolidated Plan, Anne Arundel County partners with Arundel Community Development Services, Inc. (ACDS), the Housing Commission of Anne Arundel County, and others to administer programs to address both workforce housing as well as low income housing needs. These include acquisition/rehabilitation programs, homeowner rehabilitation programs, innovative homeownership programs, rental housing production programs, and housing vouchers. ACDS is responsible for

planning, administration and implementation of the State, local and Federally funded housing and community development programs, and seeks to preserve and increase the supply of affordable housing, revitalize declining neighborhoods, promote homeownership and ensure housing for those with special needs.

The State's Department of Housing and Community Development, working with ACDS, also offers several programs to support homeownership in the County. These programs provide low interest mortgage and down payment assistance for qualifying buyers.

There have also been several Task Force initiatives to address the issue of workforce housing. The Annapolis and Anne Arundel County Chamber of Commerce undertook the latest task force initiative in July 2006. The effort was guided by the vision that "in order to be a vibrant, attractive and economically prosperous community, Anne Arundel County must strive to create and maintain a diverse community of workers." This necessitates the creation and preservation of a housing market with a broad range of housing options for all income levels.

To supplement these existing programs, several goals, policies and actions are listed below.

Goal: Provide a variety of housing opportunities to serve the full range of housing needs in the County.

Policy 1: Maintain a suitable range of housing densities and types including single family homes, townhomes, condominiums and apartments, to meets the needs of the local population.

Actions:

- Identify and evaluate areas that may be suitable to target for Mixed Use development in order to provide more workforce housing while allowing residents to live near employment opportunities. Any such shifts should be confined to Priority Funding Areas to the extent possible.
- After the 2010 Census data is available, prepare updated population and household forecasts by age cohorts. Use this information to assess the supply and demand of age-restricted and senior housing opportunities.

Policy 2: Increase the supply of workforce housing units in the County.

Actions:

- Adopt the State's definition of workforce housing for use in establishing local policies and for consistency with State and regional policies related to workforce housing.
- Evaluate alternative forms of inclusionary housing programs that can be adopted and incorporated into the County's development codes.
- Develop additional financial incentives for the provision of workforce housing, such as streamlined regulatory processes, tax credits, density bonuses, or public/private partnerships.
- Create a Housing Trust Fund with a dedicated funding source to provide financing to improve the aging workforce housing stock and preserve and increase workforce housing.
- Promote greater use of Commercial Revitalization Tax Credits and flexible uses in Revitalization Districts to allow for inclusion of workforce housing where appropriate in these districts.
- Continue to utilize existing programs and develop new incentives to encourage rehabilitation of existing housing.
- Extend existing transit service and provide multiple transit options to support workforce housing concentrations.
- Continue to develop opportunities to partner with the State and private lenders to create new financing tools to assist with first time homeownership.

Policy 3: Promote adaptive reuse of existing structures for workforce housing.

Actions:

- Determine the feasibility of adaptive reuse of commercial buildings, such as motels and former retail centers, for workforce housing.
- Explore opportunities for use of surplus BOE properties for adaptive reuse as workforce housing.
- Target County owned surplus properties, where appropriate, for workforce housing development. Use developer agreements and/or incentives to encourage workforce housing. If deemed unsuitable for workforce housing, land could be sold and a portion of the proceeds donated to a Housing Trust Fund for workforce housing.

Balancing Land Preservation

Keeping track of remaining development capacity and targeting growth to the appropriate areas are essential steps in sound land use planning. It is equally important, however, to promote and plan for an adequate level of land preservation and to have strong policies in place to protect preservation areas from development pressures that will increase as the available development capacity is drawn down.

According to analysis completed in 2006 for the County's updated *Land Preservation, Parks and Recreation Plan*, there were 61,673 acres of protected land in the County, as summarized in Table 3-3. Protected land includes State, County and Municipal recreation land; land in agricultural easements and managed forest land; and natural resources land that is protected under public ownership, under State land trust easements, or under Open Space zoning regulations. This total represents approximately 23% of the total land area in the County. In actuality, the number is somewhat higher because land under forest conservation easements was not included in the analysis. The County does not have a complete inventory of all forest conservation easements at this time.

Table 3–3 Protected Land Summary

Category	Acres
Park Land	
Local	7,985
State	862
Total	8,847
Agricultural Land	11,475
Natural Resources Land	41,352
Total Protected Land	61,673
Source: Anne Arundel County 2006 Land Preservation, Parks and Recreation Plan	

The Land Preservation, Parks and Recreation Plan established a goal of acquiring an additional 2,850 acres of recreation, open space, and natural resource land and an additional 8,500 acres of land under agricultural easements over the 15-year planning horizon (2005 – 2020). Based on recent land preservation accomplishments, the 2009 GDP increases the recreation, open space, and natural resource land preservation goal from 2,850 to 4,000 acres, of which 850 acres would be planned for active recreation and 3,150 acres for open space and natural resource protection. If this goal is achieved, the total amount of protected land in the County will increase to 74,173 acres, or 28% of total land area. This would be a significant achievement for a jurisdiction located between two major metropolitan areas in one of the fastest growing regions in the nation. It is also an achievement that, to be realized, will likely require stronger land preservation policies be established, stronger incentives be developed for private property owners to preserve land, and new funding sources or revenue strategies be created to allow additional land acquisition for preservation.

The County currently has mechanisms in place to help prioritize where these preservation efforts should be targeted. The *Greenways Master Plan* proposes a network of protected corridors of woodland and open space, and to date approximately 49% of the proposed network is not yet permanently protected. In addition, the County's Rural Legacy Area as well as the proposed Priority Preservation Area (see Chapter 8) are targeted areas for preservation.

This GDP includes strategies to increase and enhance preservation efforts in these areas in order to achieve the "28% protected land" goal. Goals, policies and actions to accomplish this are listed below as well as in Chapter 5 (Environmental Stewardship).

Goal: Increase the amount of protected land in the County in order to preserve open space and rural areas and protect natural resources.

Policy 1: Acquire approximately 3,150 additional acres of land for open space and natural resource land protection by year 2020

Actions:

- In accordance with the 2006 *Land Preservation, Parks and Recreation Plan*, pursue the acquisition of additional land for preservation. Target properties in the Greenways network, the Rural Legacy Area, in subwatersheds identified as high priority for preservation in a Watershed Management Plan, and in other areas suitable for passive recreation or natural resource protection.
- Offset future land use and zoning intensifications by acquiring or otherwise retaining additional land for preservation where feasible.
- Partner with local land trusts to increase promotion and marketing of preservation mechanisms such as conservation easements.

Chapter 4: Community Preservation and Enhancement

There are many different communities existing in Anne Arundel County today, and some of them are quite distinctly different from others. Nevertheless, the desire to preserve and enhance their community is voiced by citizens in all reaches of the County.

The theme of community preservation and enhancement includes the key objectives of enhancement of older and underutilized commercial centers, conservation of the County's unique and distinct communities, preservation of the character of rural areas, and protection of historic areas and resources.

Commercial Revitalization

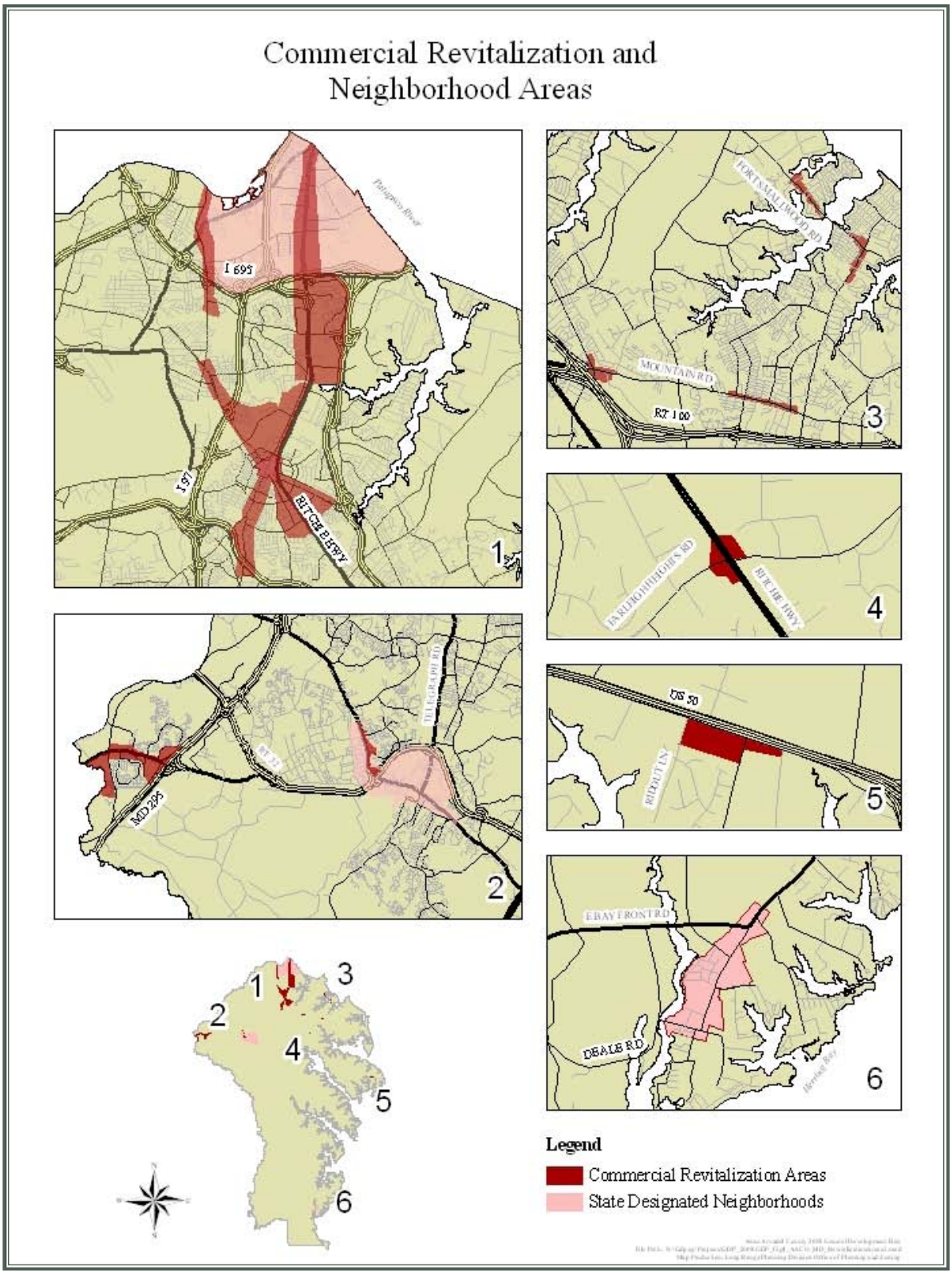
Commercial hubs or centers are part of what gives communities their unique identity. They provide gathering places, shopping places, dining and entertainment, and places to work. However, the County has several commercial hubs or corridors that are older and in need of improvement to bring new vitality not only to local businesses but to the communities they serve as well.

Over the past ten years, the County has initiated a variety of programs and incentives to address the needs of its older commercial areas. Using these programs, many vacant or underutilized commercial properties have been successfully redeveloped, including Burwood Plaza in Ferndale and the Glen Burnie Mall. More information about these programs may be found in the GDP Background Report on Economic Development and Revitalization (March 2008).

The County currently contains four State "Designated Neighborhood" revitalization areas – Brooklyn Park, Glen Burnie, Odenton, and Deale – and 16 County-designated Commercial Revitalization Districts. The State Department of Housing and Community Development offers loan programs and grant funds for businesses in these Designated Neighborhood areas, and the areas also qualify for priority consideration when applying for assistance through various other state programs to enhance community revitalization efforts.

The 16 County designated Commercial Revitalization Districts (Figure 4-1) are generally located in the northern and western parts of the County. The County's Commercial Revitalization program provides property tax credits for up to five years equal to the incremental increase in real property tax assessment for improvements of at least $50,000. Types of uses permitted in these areas have been expanded to give more flexibility in redevelopment. These areas may also qualify for multiple liquor licenses to attract nationally known chains as a tool to reinvigorate these areas.

Figure 4–1 Community Revitalization and Neighborhood Areas



While some successes have occurred in revitalizing these areas, these efforts are frequently in competition with plans for new development projects that are often more attractive to businesses and retailers. The following policies and actions will serve to focus more attention on these older commercial areas and the importance of enhancing them to realize their full potential.

Goal: Enhance commercial hubs and corridors to create thriving and attractive centers that serve both local communities and regional needs.

Policy 1: Actively promote redevelopment in the County's Commercial Revitalization Areas.

Actions:

- Refine the boundaries of existing Commercial Revitalization districts. Identify other commercial areas that should be designated as revitalization districts and incorporate them into the Zoning Ordinance.
- Develop a stronger marketing program and devote more resources to increase participation in the Commercial Revitalization program and to encourage redevelopment and reuse of vacant and underutilized buildings and sites in designated revitalization areas. Essential resources should include 1) community infrastructure commitments such as streetscape improvements or parking; 2) program incentives to stimulate new investment in existing facilities; 3) real estate tools and incentives to assist in the consolidation of parcels for redevelopment projects; and 4) staff and budgetary resources to implement the initiative.
- Develop a work program between Planning and Zoning (OPZ) and AAEDC to market redevelopment concepts and opportunity sites to attract redevelopment. Use OPZ's Urban Design Studies program and AAEDC's Business Corridor Investment Loan Program to develop concepts and design guidelines for designated revitalization areas, and incorporate design guidelines into the Commercial Revitalization legislation as needed.
- Encourage the concept of 'sense of place' by promoting unique urban design features that reflect community character in revitalization areas.
- Promote the use of volunteer/community service projects to maintain cleanliness in commercial revitalization areas.

Neighborhood Conservation

Two widely recognized principles of Smart Growth involve the redevelopment of improved but underutilized properties to maximize their potential, and the promotion of infill development in areas where public facilities and infrastructure are already in

place. While these are sound policies from the planning perspective, in reality they are sometimes unwelcome in local communities that are concerned with maintaining the neighborhood character that they have grown used to. Local citizens often complain that infill development does not "fit in" or is not cohesive with the rest of their community, and that redevelopment is not in scale with the surrounding densities, building heights, or the overall "look" of the community.

There are several examples of neighborhood conservation programs around the Country that can be used as a model for Anne Arundel County. These types of programs work to permit infill development and redevelopment in existing communities that will enhance the neighborhood character rather than detract from it. Such a program can be established using design guidelines or overlay districts. Criteria should be established in designating qualifying neighborhoods so that those communities with truly unique characteristics that warrant preservation can be identified and targeted.

In addition, potential redevelopment or infill areas are often located in older, historic neighborhoods and communities. Therefore, a neighborhood conservation program should seek to incorporate existing historic preservation principles and programs so that it can serve to protect historic features of a community as well as other unique features.

Goal: Preserve the character of established communities that have unique qualities and distinctive character.

Policy 1: Develop a Neighborhood Conservation Program through appropriate legislation and/or regulations to identify distinctive or historic neighborhoods, and to conserve and enhance their unique character.

Actions:

- Establish criteria to be used in defining a neighborhood as unique, distinct or historic. Criteria may include such features as community character, architectural style, historic significance, etc.
- Based on established criteria, identify neighborhoods or communities that qualify as a Neighborhood Conservation district.
- Establish a community outreach process to be used in developing Neighborhood Conservation criteria, standards, and districts.
- Establish objectives and design standards applicable to each designated Neighborhood Conservation district.
- Develop legislation to create Neighborhood Conservation overlay districts and associated design standards and/or guidelines.

Preserving Rural Areas

Much of the County's rural areas have a distinctive character of their own, a character most often thought of as scenic. These areas are found in South County predominantly, but also in Crownsville, Millersville, Gambrills, Odenton, Broadneck, Lake Shore, and smaller scattered areas around the County. They are developed at low densities with primarily residential uses or farming operations, and the preservation of open areas and wooded areas is a common goal throughout. New development here is encouraged to be clustered in order to maximize retention of open space.

While the County's adopted Land Use Plan and Rural Agricultural zoning district can limit development densities and prevent suburban-type development, there is still a sense among many local citizens that the unique and aesthetic rural character of these areas is being lost. With the increasing development pressures over the past few decades, many farms have been converted to 'rural subdivisions' and the vast expanses of rural land have become somewhat fragmented over time. The need now is for renewed efforts to retain the County's remaining rural areas over the long term.

To some extent, the objective of preserving rural areas overlaps with the related topics of land preservation and environmental conservation in a broader sense. Hence, there are related policies and actions found in Chapter 3 on Balanced Growth and in Chapter 5 on Environmental Stewardship. The purpose here, as related to preserving communities, is to preserve rural communities for the sake of their unique and scenic character. The specific topic of agricultural preservation is discussed in more detail in Chapter 8 which addresses the designation of Priority Preservation Areas (PPAs).

Goal: Preserve the character of the County's rural areas.

Policy 1: Maintain the Rural Land Use designation and Rural Agricultural (RA) zoning as the primary mechanism for preserving the rural character of South County and other rural areas.

Actions:

- Develop Rural Area design guidelines or standards to apply to new development in the Rural Agricultural district and incorporate them in the County's development regulations. Consider the guidelines developed in the South County Small Area Plan.
- Determine the viability of a transferable development rights (TDR) program as an alternative approach to preserving rural areas.

Protecting Historic Resources

The County's historic structures, sites and districts have significant value not only as cultural resources in themselves, but also as an important aspect of community preservation. Anne Arundel County has a rich and varied collection of sites, structures, landscapes, and cemeteries that represent its collective history, from 13,000 year-old prehistoric archaeological sites, to Colonial plantations, to World War II era housing. These cultural sites are important elements of the County's landscape and are worthy of study and preservation. The County is fortunate to have retained so many historical and archaeological treasures that trace this long and interesting history, such as Native American tools, Colonial period relics, and the tobacco barns of South County.

The County's Historic Inventory is a list of important resources that document the historic sites, buildings, landscapes and objects that are significant to the County's past. This archive is substantial and has been developed over more than 40 years of research by local historians, interested citizens, and increasingly, by professionals in the field. The Inventory of resources is a constantly changing database that is maintained and updated by the Cultural Resources Division in the County's Office of Planning and Zoning.

The current Inventory includes historic sites and structures, scenic and historic roads, archaeology sites, cemeteries, and recorded easement properties as well as sites on the Maryland Inventory of Historic Properties. In addition, there are almost 60 sites, buildings and districts in the County that are listed on the National Register of Historic Places. Four of these resources are entire historic districts of exceptional value (Linthicum Heights, Owensville, Davidsonville, and Woodwardville). As such, these districts meet the criteria for, and have been formally designated as, National Register Historic Districts. As of December 2007, the County's Inventory of Historic Properties includes 2,237 historic sites, 1,444 archaeological sites, 388 recorded cemeteries, and 153 scenic and historic roads.

The County has developed a multi-faceted program for the purpose of cultural resource preservation. It includes conducting compliance reviews of development plans; conducting site investigations as required in the course of these reviews; proactively pursuing preservation projects that will benefit the citizens of Anne Arundel County; supporting and serving in advisory roles for preservation programs and research efforts of local non-profits and the County citizenry; providing public education and outreach to raise awareness and promote stewardship of the County's threatened cultural resources; and

conducting research to document, register, record, and investigate the cultural resources of the County.

In addition, the Subdivision Regulations include provisions for development along scenic and historic roads. Such developments are required to incorporate site designs that minimize impacts on views from the road, minimize tree and vegetation removal and grading, and include other design criteria such as buffers and natural screenings that will help retain the scenic character of the road. The Subdivision code was revised in 2006 to prohibit certain uses allowed in the RA (Rural Agricultural) zoning district from locating on a scenic or historic road. The inventory of scenic and historic roads was also expanded at that time to include additional roads.

The *Annapolis, London Town and South County Heritage Area Management Plan* promotes strategies for tourism and small business development as well as education, historic preservation, cultural and natural resource conservation, and recreation in a strategic effort to enhance the historic and cultural resources in the Four Rivers Heritage Area.

Collectively these efforts have resulted in the preservation and protection of numerous important resources in the County. Under new Code provisions enacted in late 2005, nearly two dozen archaeological sites, cemeteries, and buildings have been protected through preservation easements. The County recognizes the economic value of these treasures as important attractions for the tourism industry.

Nevertheless, development pressures continue to compete with historic preservation goals, and structures continue to be lost due to "demolition by neglect" (intentionally allowing a building to deteriorate to the point where demolition is necessary to protect public health and safety). In order to better protect its cultural resources from these pressures, the County needs to take a proactive role by identifying potential development sites that will negatively impact listed or eligible resources, raising awareness about existing regulations, establishing stronger communications within the County government to prevent the inadvertent destruction of sites, evaluating and mitigating the potential effect of large scale development initiatives, and establishing more robust penalties to discourage the intentional destruction of historic resources. Specifically, the following policies and actions will build upon and enhance current efforts toward preservation.

Goal: Protect and preserve the historic and archaeological heritage of the County.

Policy 1: Develop stronger incentives to encourage and promote historic preservation, along with stronger deterrents to prevent destruction of historic resources.

Actions:

- Assess the feasibility of adopting a local historic preservation tax credit and/or property tax abatement program to encourage the retention and adaptive reuse of historic buildings.
- Revise subdivision regulations to allow historic property lots to be created without counting towards the allowable density of a subdivision, given that the historic property is retained and protected by easement.
- Develop and adopt stronger penalties for intentional destruction of historic resources. Raise the class of fines for "demolition without a permit" when an historic property is involved.

Policy 2: Strengthen land use policies and regulations for cultural resource protection.

Actions:

- Conduct an assessment of current levels of protection for cultural resources provided through land use regulations, and determine whether there are additional policies or Code provisions needed for greater levels of protection.
- Evaluate the Scenic and Historic Roads regulations to more clearly establish the criteria used to evaluate the treatment of each road in a development context.
- Develop local incentives to encourage property owners to pursue National Register of Historic Properties nominations and listing with the County's assistance.
- Partner with the Agricultural Preservation Program to incorporate historic and archaeological resource protection into those efforts.

Policy 3: Improve interagency coordination within the County system in order to enhance historic preservation efforts.

Actions:

- Work with State and County agencies to improve recordation and tracking procedures for maintaining an up-to-date and accurate inventory of historic properties and easements in the county.
- Continue to support and participate in the Maryland Heritage Areas Program to provide additional funding sources and tax incentives and promote heritage tourism.
- Develop preservation plans for historic and cultural resources located on County-owned properties.

Policy 4: Enhance public education and community outreach efforts to promote historic preservation and stewardship.

Actions:

- Provide adequate funding and resources to support the educational outreach programs, address community outreach needs, and to maintain the County Archaeological Lab facility.
- Develop educational programs and tours of historic sites in the County by partnering with State agencies and other non-profit organizations.
- Maximize use of volunteers to assist with cultural resources research and site documentation.

Chapter 5: Environmental Stewardship

The Chesapeake Bay is the largest estuary in the United States (US EPA, 2004) with a watershed area of over 64,000 square miles encompassing portions of New York, Delaware, Pennsylvania, Maryland, Virginia, West Virginia, and the District of Columbia. It is over 200 miles long and is fed by 48 major rivers and hundreds of smaller rivers and tributaries. The Bay provides an ideal habitat for a broad diversity of animal and plant species, and is an important economic and recreational resource for the more than 15 million people who live in the watershed. Anne Arundel County, on the western shore of the Chesapeake Bay, is bordered almost entirely by water. The Patapsco River serves as the County's northern border; to the west is the Patuxent River; and to the east is the Chesapeake Bay. As a result of being almost surrounded by tidal and non-tidal waterways, Anne Arundel County has over 533 miles of shoreline.

The natural environment within Anne Arundel County is rich in diversity and is one of its biggest assets. The County has many large and small rivers, streams and coves that form its shoreline, extensive woodlands, farmlands, and sensitive areas such as tidal and nontidal wetlands, habitats of rare, threatened and endangered species and steep slopes.

Preservation of the watersheds and these natural resources is a high priority of the County as evident in the extensive amount of public outreach conducted during the community-based Small Area Planning process. One of the most commonly voiced concerns throughout was the need for increased protection and preservation of the County's water, forest and other natural resources.

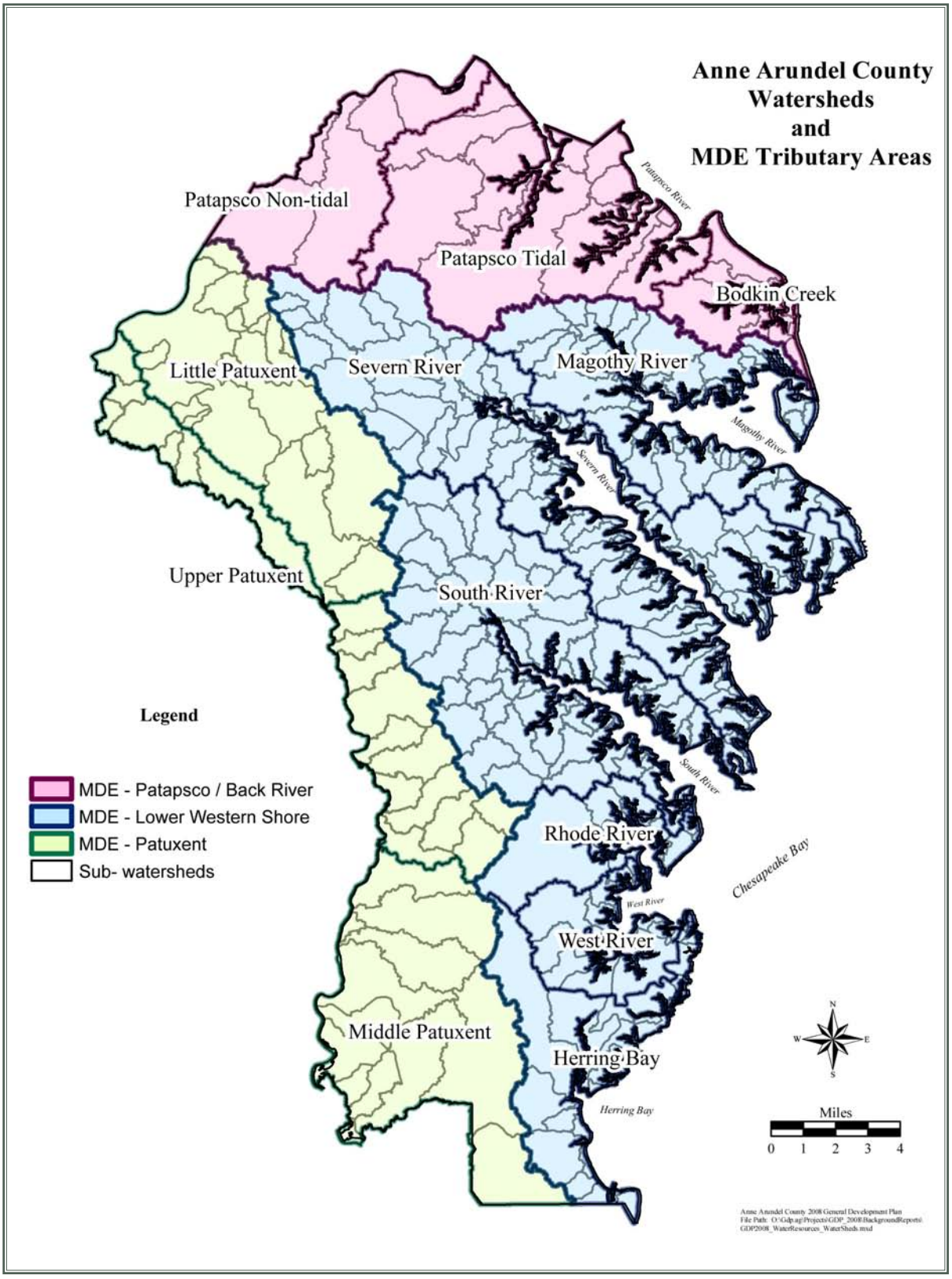
There are multiple programs, plans, and regulatory measures in place at both the State and local level for protection of natural resources, and collectively they have accomplished much in terms of natural resource conservation. Nevertheless, all of the major watersheds in the County suffer some form of impairment. There are areas in need of enhanced protection or restoration, and additional incentives are needed to promote conservation. Integration of comprehensive plans, regulations and programs will better preserve these areas.

The following sections address the issues related to the natural environment, and present goals, policies, and actions for implementing the Environmental Stewardship Vision of the County. More detailed information on these sections can be found in the Background Reports on Natural Resources and Water Resources.

Watershed Protection

Twelve distinct watersheds make up the Anne Arundel County landform, which are part of three larger tributary watersheds in the State (Figure 5-1). Recognizing the value of these aquatic resources, the 1997 GDP adopted a number of goals, policies and strategies

Figure 5–1 Watersheds and MDE Tributary Areas



to protect and preserve the Chesapeake Bay and its tributaries. Many of the strategies have been or are currently being implemented. Watershed protection is currently accomplished through a number of individual programs including watershed management plans, the erosion and sediment control program, the stormwater management program, stormwater NPDES permit, and the Critical Area program. Continued progress towards completion of the watershed management plans, stricter stream buffer requirements, implementation of environmentally sensitive site design criteria, and implementation of recommendations from the recent septic system study are some critical strategies necessary for watershed protection.

Watershed Management Plans

The County is in the process of preparing Comprehensive Watershed Management Plans for each of the 12 watersheds that will provide technical support for the development, implementation, management, and refinement of the existing programs. They also provide a holistic and systematic watershed perspective to land use planning and development review activities. To date, the County has completed watershed management plans for the Severn River, South River, Upper Patuxent River and Magothy River watersheds.

With the preparation of the *Severn River Watershed Management Master Plan*, a Watershed Management Tool for the County was developed. The Watershed Management Tool is being used to prioritize where to focus restoration and preservation investment, as well as selection of the most appropriate alternative solutions or best management practices. In addition, the impacts of land use policies can be modeled to predict future watershed water quality conditions more favorable to meeting defined water quality standards. The watershed modeling capabilities include simulation of storm water run-off water quality; soil erosion from the land surface; flooding and changes in flow regime; groundwater and surface water interactions (watershed water budget); and stream habitat quality. It also allows simulation of point and non-point source pollutant loads; fate and transport of pollutants on land and in the waterbody; and the role of time and spatial scale.

The topic of watershed protection is also covered in Chapter 10 on Water Resources. The County has begun the task of a Countywide prioritization of its subwatersheds and stream reaches to determine which are most in need of restoration or protection, and the results of this analysis are presented in Chapter 10. Chapter 10 also includes an assessment of watershed impacts from water reclamation facilities, septic systems, and nonpoint source runoff, and establishes policies and actions to minimize these impacts in order to achieve water quality goals and standards.

Goal: Achieve or exceed Federal and State mandated water quality standards in all watersheds in the County.

Policy 1: Maintain a proactive watershed planning program that integrates land use planning and water resource protection. In addition, maintain a proactive environmental monitoring program that will assess the effectiveness of stormwater management practices and watershed restoration actions and track progress toward meeting water quality standards.

Actions:

- Complete Round 1 physical, chemical, and biological assessments for all streams within the County. Remaining: Patapsco Non-Tidal, Patapsco Tidal, Bodkin, Little Patuxent, Middle Patuxent, West River, Rhode River, and Herring Bay.
- Re-evaluate water quality monitoring as needed for affected streams that were previously evaluated as part of required monitoring for County restoration projects (e.g. Towsers Branch).
- Continue to maintain and update the County's impervious and Landcover GIS coverage. Improve the scale of the coverage to support a more refined parcel level pollutant loading model and a fair basis for assessing stormwater fees in the event such fees are assessed in the future.
- Assess all stream reaches and subwatersheds within the County and prioritize them for restoration and preservation.
- Develop and update the current and ultimate development stormwater and septic pollutant loadings at the subwatershed scale for all watersheds in the County.
- Identify potential restoration/preservation opportunities and conduct cost/benefit studies to assess the effectiveness of implementation in meeting Total Maximum Daily Load (TMDL) regulatory requirements. Conduct implementation feasibility studies and develop concept restoration plans for select projects. Recommend implementation through CIP and grant funding.
- Use the County's Watershed Management Tool and watershed assessment data to review stormwater management plans and flood studies associated with development projects and zoning applications.
- Utilize information and results from watershed assessment work to recommend revisions or enhancement to the County's stormwater management standards, codes, and regulations.
- Use the Watershed Management Tool to track forest cover in each watershed with a goal of preventing the loss of forest cover. Use the State's recent Stormwater Management Act and its focus on reducing impervious areas to create more opportunities for forest conservation.

- Continue correspondence with the Maryland Department of the Environment (MDE) to reach agreement on the assessment methods, goal setting protocols, and development and effectiveness of watershed implementation plans.
- Work with MDE to address the ongoing problem of high bacteria levels in local waterways including Furnace Creek, Marley Creek, and Rock Creek. Future watershed studies and Watershed Management Plans should coordinate with MDE and the County Health Department to further determine the source of bacterial loading to these waterways and identify ways to reduce and eliminate these sources.
- Continue participation in the Tributary Strategies teams.

Sensitive Areas

The County's sensitive areas include streams and their buffers, the 100-year floodplain, habitats of rare, threatened and endangered species, steep slopes, and tidal and nontidal wetlands. These areas are currently protected through various existing regulations such as the Subdivision Code and the Floodplain Ordinance. New strategies such as environmental protection overlay zones for high priority areas are also being explored as methods of protecting sensitive areas and preserving the environment. In addition, continued monitoring and necessary modification of regulations and policies will improve upon their effectiveness.

Streams and Stream Buffers

There are over 1,750 miles of non-tidal streams in the County. Most of these streams are short, first- or second-order headwater streams that are slow moving with a very low gradient. As these streams flow toward the Chesapeake Bay, they slow down and begin cutting more deeply into the landscape. Stream buffers are important in controlling nutrient and sediment runoff, maintaining stream temperatures, and providing aquatic and wildlife habitat.

Streams and stream buffers are currently protected through the County's Floodplain and Subdivision ordinances and the County's Stormwater Design Manual.

100 – Year Floodplain

Anne Arundel County is prone to three types of flooding: nontidal flooding from rivers and streams; tidal flooding from storm surges and tides; and coastal flooding caused by intense winds and heavy rains from tropical storms, hurricanes and steady on-shore winds and elevated tide levels.

Floodplains in the County are protected through the Floodplain, Subdivision, and Zoning ordinances. The Floodplain Ordinance defines the floodplain districts, requires delineation of the floodplain on development plans submitted to the County, prohibits new structures or substantial modifications to structures in the 100-year nontidal floodplain,

requires structures in the 100-year tidal floodplain to be elevated above the floodplain level, and requires that safe vehicle access to and egress from a development is provided. The Subdivision Ordinance requires subdivisions with floodplain areas that are not deeded to the County as open space to provide an easement for access to and maintenance of the floodplain. Most of the floodplain area in the County is zoned Open Space, which allows protection of the floodplain in its natural state. Additionally, the stream buffer requirements associated with stormwater management for new development also serve as a means of floodplain protection. Figure 5-2 depicts floodplains in Anne Arundel County.

The Federal Emergency Management Agency (FEMA) is the Federal agency responsible for floodplain management. Currently, FEMA is working in partnership with the Maryland Department of the Environment to update floodplain studies and associated mapping for 17 Maryland counties. Anne Arundel County's updated floodplain study is expected to be completed in 2009 and will more accurately estimate the flooding risk to all County property.

Habitats of Rare, Threatened and Endangered Species

In 1979, the State of Maryland established the Natural Heritage Areas Program, which is administered by the Maryland Department of Natural Resources (DNR). This program is responsible for identifying, ranking, protecting and managing Rare, Threatened and Endangered (RTE) species throughout the State. In order to accomplish this, Maryland DNR restores degraded habitats, conducts field surveys, performs research, and continues public outreach and education efforts.

As of December of 2007, DNR has identified 10 animal species and 58 plant species classified as endangered, threatened, or in need of conservation in Anne Arundel County. Currently, there are three distinct areas designated as Natural Heritage Areas within Anne Arundel County (Figure 5-3). These areas (Cypress Creek Swamp, Eagle Hill Bog, and the Upper Patuxent Marshes) encompass approximately 2,646 acres of protected lands. Each of these areas contains one or more RTE species classified by DNR.

The Natural Heritage Areas Program has established review areas through the State. Whenever there are proposed development projects within these review areas, DNR will examine the proposal to ensure that they do not negatively affect sensitive plant and animal species within them. In select circumstances, the Program will cooperate with local non-profit organizations to acquire land that encompasses RTE species.

The State Department of Natural Resources is the primary agency responsible for establishing criteria for the protection and preservation of RTE plant and animal species. The County defers to the recommendation of the State and federal agencies in establishing the appropriate buffers to these habitats.

Figure 5–2 100- Year Flood Plains

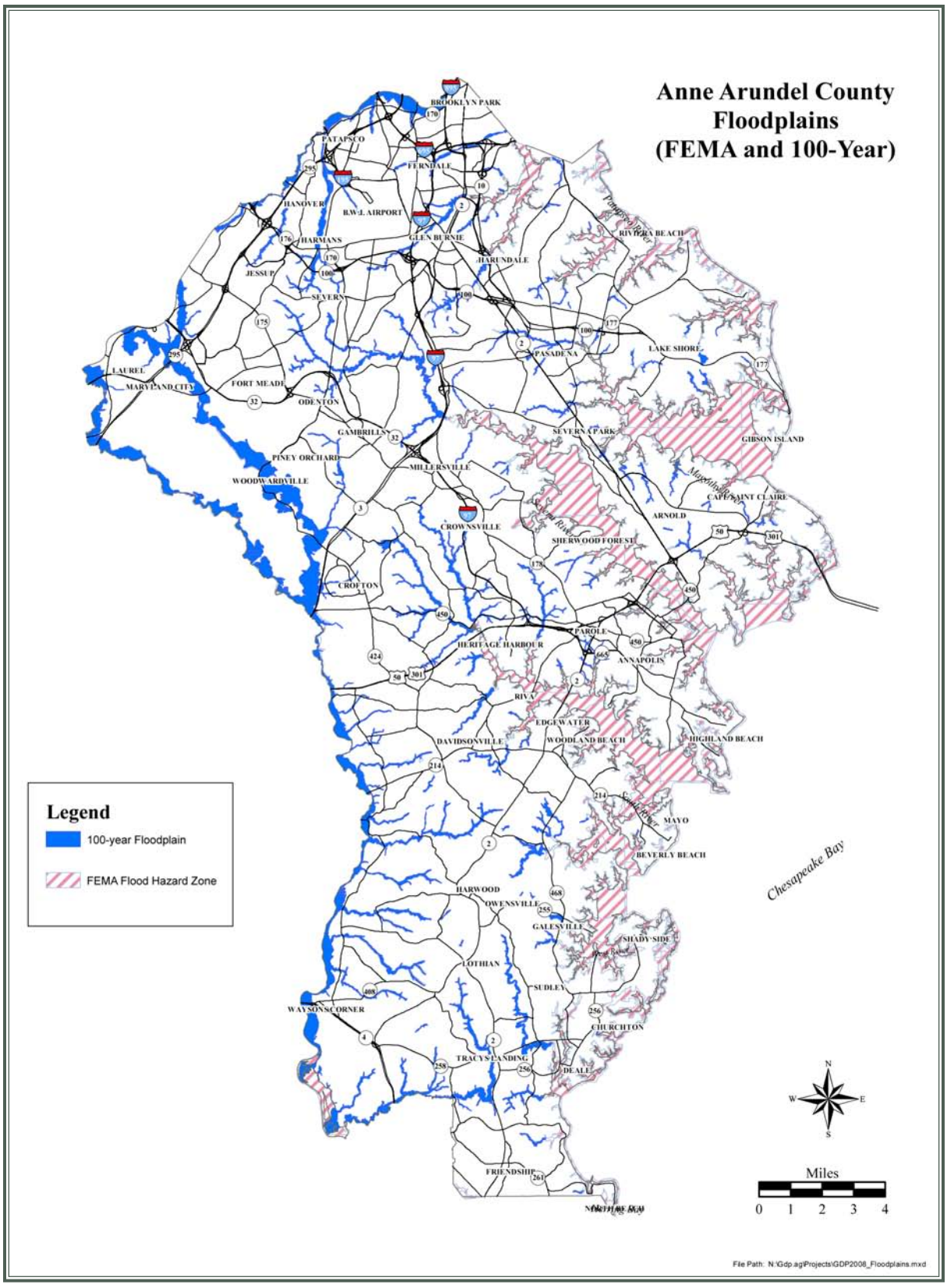
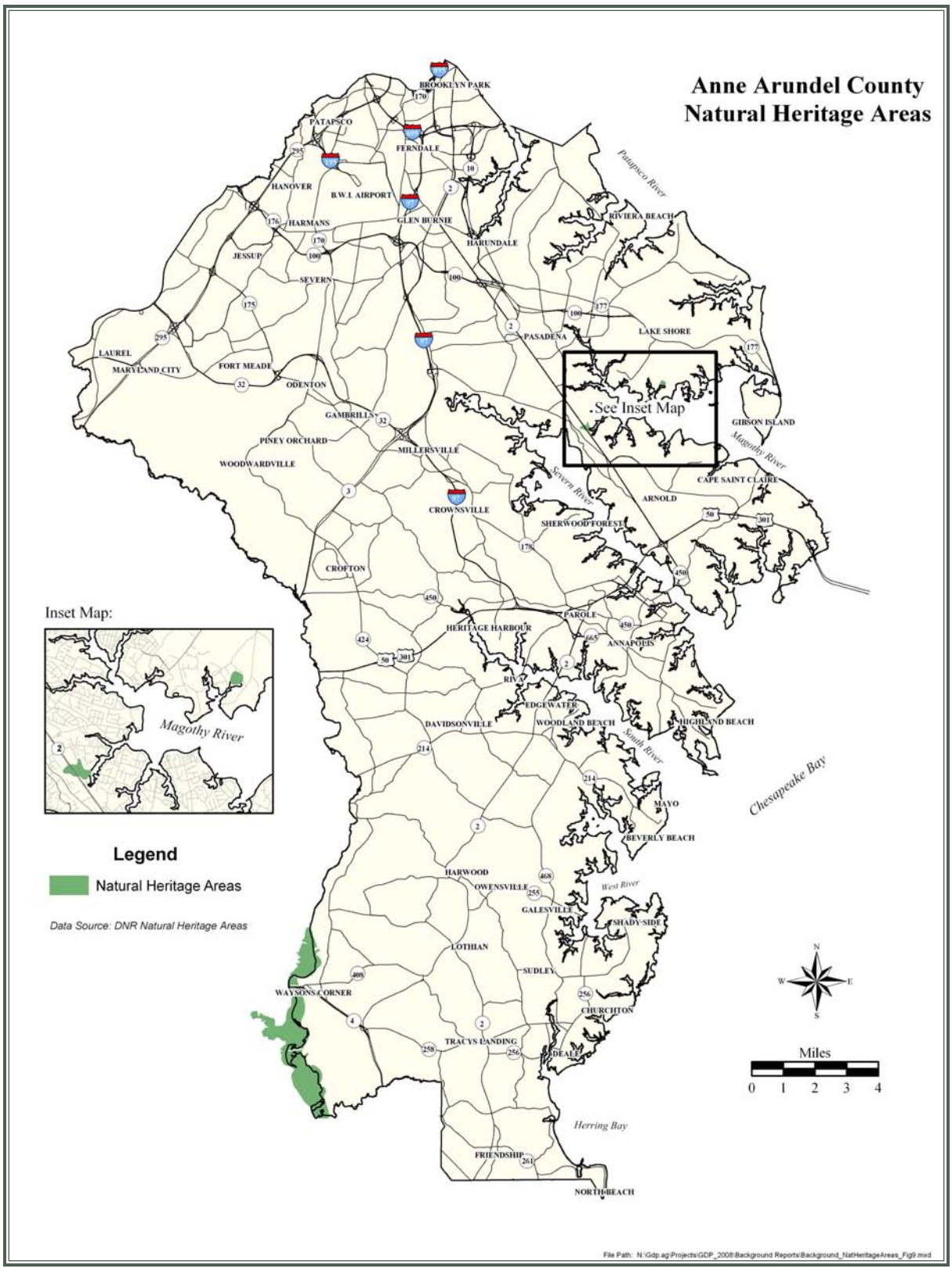


Figure 5–3 Natural Heritage Areas



Steep Slopes

Steep slopes are defined in the County Code as those that have a 25% or greater slope, and that have an onsite and offsite contiguous area that is greater than 5,000 square feet over 10 feet vertical as measured before development. In the Critical Area and designated sensitive areas, steep slopes are defined as those having a 15% or greater slope. Most of the steep slopes occur along the rivers and streams. A nearly continuous stretch occurs between the headwaters of the Severn River to the County's southern boundary near Herring Bay. The most severe slopes are along the Severn and South rivers. It is imperative to protect these slopes from erosion, which can lead to poor water quality from the sediment loading into streams.

Anne Arundel County protects erosion of steep slopes through the Subdivision Ordinance. Development in the County may not occur within steep slopes or within 25 feet of the top of the steep slopes where the onsite and offsite contiguous area of the steep slopes is greater than 20,000 square feet unless development will facilitate stabilization of the slope or the disturbance is necessary to allow connection to a public utility. In the RCA and LDA overlay zones of the Chesapeake Bay Critical Area, development may not occur within slopes of 15% or greater.

Wetlands

Anne Arundel County is fortunate to have over 500 miles of tidal shoreline and large areas of tidal wetlands. Tidal wetlands have long been recognized as an important component in the health of the Bay. They provide numerous environmental benefits such as filtering sediment and nutrients from upland runoff, controlling flooding and shoreline erosion, providing nurseries for shellfish and finfish, absorbing nutrients from the water column, and providing valuable habitat for many aquatic and terrestrial species of flora and fauna. Tidal wetlands are critically important to commercial and recreational fisheries. Many of the Bay's commercial fin and shellfish spend a crucial part of their early life cycle in tidal wetlands, and use these areas as refuge from predators.

The County protects tidal wetlands through implementation and enforcement of the Critical Area Program. Through the permitting process, any proposed impacts to tidal wetlands are assessed to determine compliance with Critical Area requirements, including the requirement for a 100-foot buffer to tidal wetlands. Additionally, the County coordinates with the U.S. Army Corps of Engineers and MDE to prevent adverse impacts to tidal wetlands from development projects and shoreline stabilization projects.

Over half of all wetlands within Anne Arundel County are considered upland or nontidal wetlands. These are areas where water is the primary factor controlling the hydrology and associated plant life. There are many types of nontidal wetlands such as forested wetlands, scrub-shrub wetlands, and wet meadows. Nontidal wetlands provide many of the same environmental functions as tidal wetlands, including providing habitat for fish

and wildlife, maintaining water quality and flood control, reducing nutrients from run-off, and recharging groundwater. (Figure 5-4 shows locations of nontidal wetlands in the County).

The County protects nontidal wetlands through enforcement of the Chesapeake Bay Critical Area Program, the sensitive areas criteria of the County Grading Ordinance and the County Subdivision Ordinance by requiring a 25-foot buffer around nontidal wetlands except in the Parole Growth Management Area, where it is set between 25-75 feet depending on quality and function of the wetland. In addition, the County Code requires a 50-foot buffer to nontidal wetlands for sand, gravel and clay extraction. All permits that impact wetlands are required to obtain approval from the U.S. Army Corps of Engineers and MDE.

Nontidal Wetlands of Special State Concern are the best example of Maryland's nontidal wetland habitats and are designated for special protection under the State's nontidal wetland regulations. Bogs are one of the types of Nontidal Wetlands of Special State Concern. Anne Arundel County has several bogs within the Magothy River Watershed, the Severn River Watershed and along the Tidal Patapsco River (Figure 5-5).

Anne Arundel County recognizes these unique systems as being worthy of preservation and protection. The County Code sets forth the protective requirements via a Bog Overlay Zone. The bog protection area is divided into the following classifications: bog, contributing streams, 100-foot upland buffer, limited activity area and contributing drainage area. The Code prohibits disturbance of any kind within a bog and the contributing streams. Additionally, it stipulates requirements and prohibitions related to development, subdivision, stormwater runoff, septic systems, and impervious surfaces within the 100-foot upland buffer, the 300-foot limited activity area and the contributing drainage areas.

Jabez Branch

Jabez Branch, a tributary to the Severn River, is unique among streams in Anne Arundel County in that it supports a naturally reproducing population of brook trout (Salvelinus fontinalis), the only population known to exist in the Coastal Plain physiographic region of Maryland. Because of the presence of this coldwater fishery, Jabez Branch is a Designated Use III water (a designation specific to use as a naturally reproducing trout stream) by the Maryland Department of the Environment, the only such designation by MDE in the Coastal Plain region.

Protection of the Jabez Branch subwatershed is a priority and to this end, the Odenton Small Area Plan recommends that the County establish an environmental overlay zone for the subwatershed. To realize this goal, and to achieve the above listed conditions and ensure continuation after realization, the County has been working with the Severn River Commission to develop requirements for an environmental overlay zone specific to this subwatershed. For the Jabez Branch, the overlay zone would serve to minimize the

Figure 5–4 Location of County Bogs

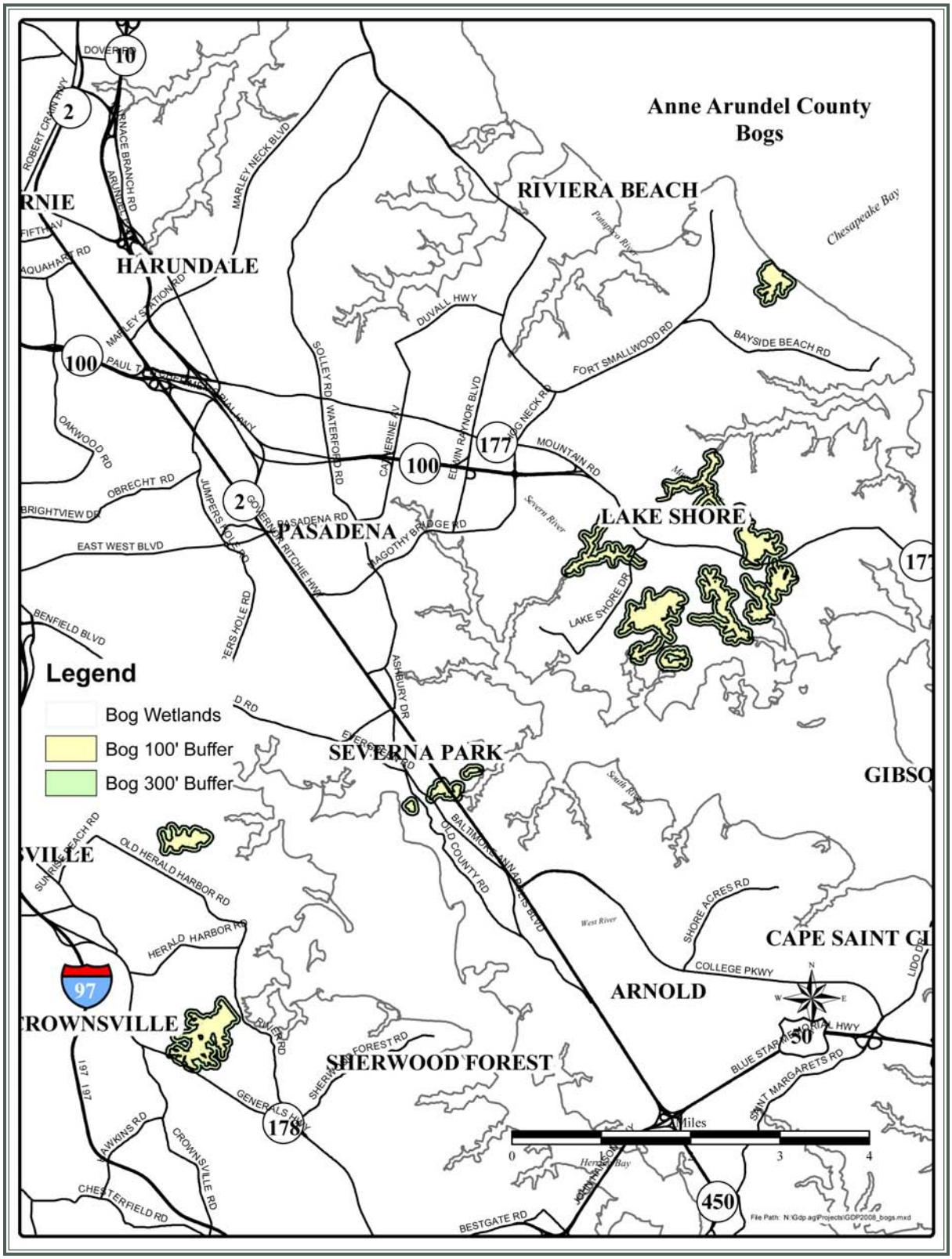
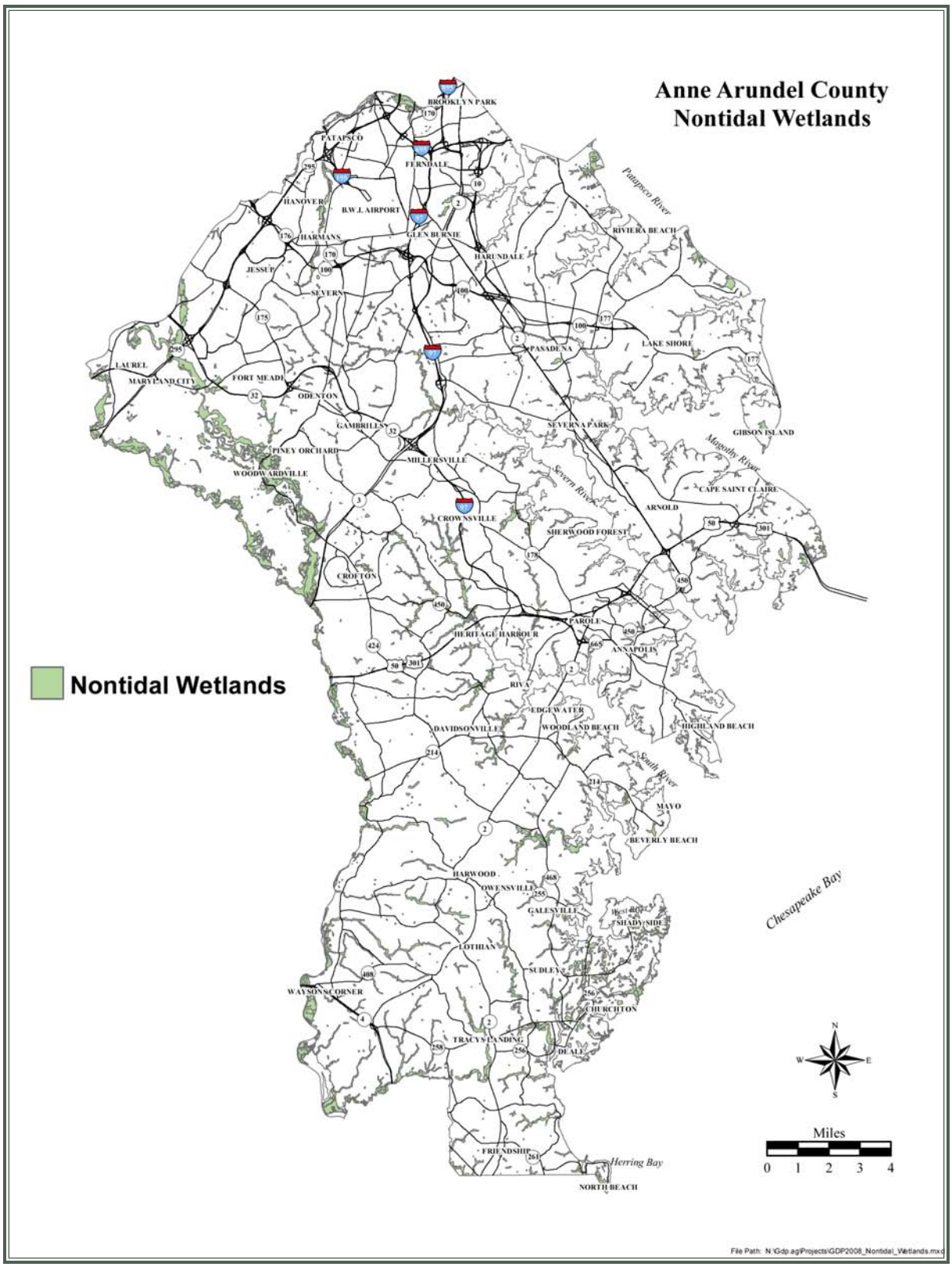


Figure 5–5 Nontidal Wetlands



impacts from stormwater runoff and sediment loading to the stream, maintain or reduce existing impervious surfaces levels, maintain adequate stream flow and temperature to protect the coldwater temperature and flow regime, and establish and maintain wider forested riparian buffers than currently required under County stormwater management regulations to protect the overall ecosystem quality.

The final language of the overlay zone has not yet been determined. County staff and a subcommittee of the Severn River Commission are now finalizing the desired requirements of the zone and will continue to work with the Office of Planning and Zoning to develop appropriate regulatory language. Once adopted, regulations would then be incorporated into the County's Zoning Ordinance.

The following policies and actions are proposed to increase protection of all of the County's sensitive areas.

Goal: Preserve and protect sensitive areas including streams and their buffers, floodplains, Natural Heritage Areas, steep slopes, tidal and nontidal wetlands, and unique watersheds.

Policy 1: Protect stream buffers as a means of reducing stormwater runoff impacts and improving water quality in local tributaries.

Actions:

- Evaluate current stream buffer requirements in the Stormwater Design Manual and expand buffer requirements either Countywide or in select subwatersheds as needed to achieve watershed planning goals.
- Where modifications to development are approved in sensitive areas, evaluate the possibility of requiring a fee to be paid and placed in a natural resource restoration fund.
- Consider revisions to development regulations that would disallow modifications to forest conservation requirements or stream buffer requirements in high priority subwatersheds.
- Consider use of County reforestation funds to purchase environmentally sensitive properties for protection.

Policy 2: Minimize disturbance to floodplains.

Actions:

- Use FEMA's updated Digital Flood Insurance Rate Maps, when available, to review and refine the OS (Open Space) zoning district Countywide.
- Explore participation in FEMA's Community Rating System.

Policy 3: Reduce the amount of disturbance to steep slopes adjacent to and within sensitive areas.

Actions:

- Review and update if necessary, the steep slopes criteria in the County. Consider a definition of steep slopes as 15% or greater if slopes occur within 100 feet of a stream.

Policy 4: Continue established policy of no net loss and strive for overall gain of tidal and nontidal wetlands.

Actions:

- Develop additional programs for wetland creation and enhancement.
- Provide for more rigorous enforcement of wetland protection in development areas.
- Identify wetland sites for mitigation banking and establish a County wetland bank. Wetland mitigation should correspond in form and function to that which was destroyed or lost.

Policy 5: Protect the Jabez Branch and other unique watersheds from adverse impacts.

Actions:

- Develop a Jabez Branch Overlay Zone and incorporate regulations into the County Code as needed.
- Evaluate whether environmental overlay zones should be established for other subwatersheds in the County in addition to the Jabez Branch.

Policy 6: Minimize the allowance of modifications to the County's subdivision and development regulations where sensitive areas are impacted.

Actions:

- Develop a set of criteria or standards to be used in evaluating modification requests that impact sensitive areas such as stream buffers, wetlands, and floodplains, and incorporate them into the subdivision and development code as appropriate.

Greenways, Open Space, and Forest Conservation

Land preservation is an important component of natural resources conservation. Natural areas such as wooded areas, greenways and open spaces provide many environmental benefits such as homes for wildlife habitat, flood control, soil erosion, filtration and absorption of pollutants.

Anne Arundel County participates in State-sponsored programs such as Program Open Space, the Rural Legacy Program, the Forest Legacy Program and the Forest Land Incentive Program. The County has met the State requirements to participate and receive funding through the Program Open Space and Rural Legacy programs. The County Department of Recreation and Parks manages these programs and funds have been used to acquire lands for conservation purposes as well as for active recreation or agricultural preservation purposes.

The *Patuxent River Policy Plan* is a land management plan to protect the river and its watershed. The goals in the plan provide a broad vision to restore and maintain water quality, habitat, groundwater and surface water supplies and a high quality of life along the Patuxent River and its tributaries. The County's Watershed and Ecosystem Services Division within the Department of Public Works actively participates with the Patuxent River Commission to implement the *Patuxent River Policy Plan*.

The County also has a Forest Conservation Program which is incorporated into the County Code and administered by the Department of Inspections and Permits and the Office of Planning and Zoning. In addition, the County has adopted master plans that provide tools for conserving natural resources and implementing a greenways network. See Figure 5-6 for a map of the greenways network and Figure 5-7 for existing woodlands.

Continued participation in the State programs, and implementation and better linkage between the strategies adopted in the *Land Preservation, Parks and Recreation Plan* and the *Greenways Master Plan* will better facilitate these land preservation efforts.

Goal: Preserve, protect and enhance the designated Greenways network as well as forest cover countywide.

Policy 1: Establish an interconnected network of protected corridors of woodlands and open space in accordance with the goals of the Greenways Master Plan.

Actions:

- Establish an ongoing system for tracking the status of properties in the greenways network, and prepare periodic status reports on additional land acquisitions or conservation easements within the Greenway network.

Figure 5–6 Greenways Network

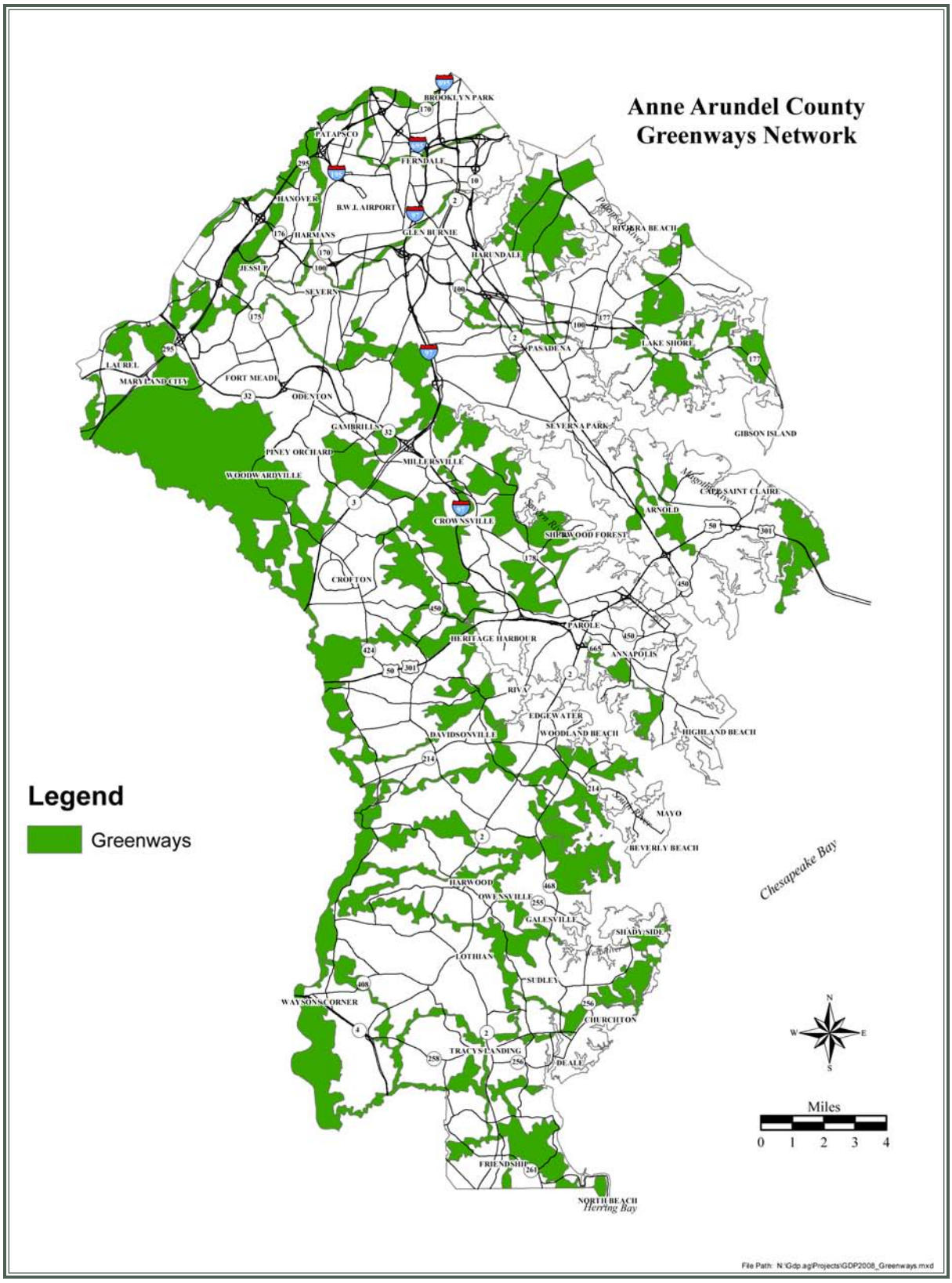
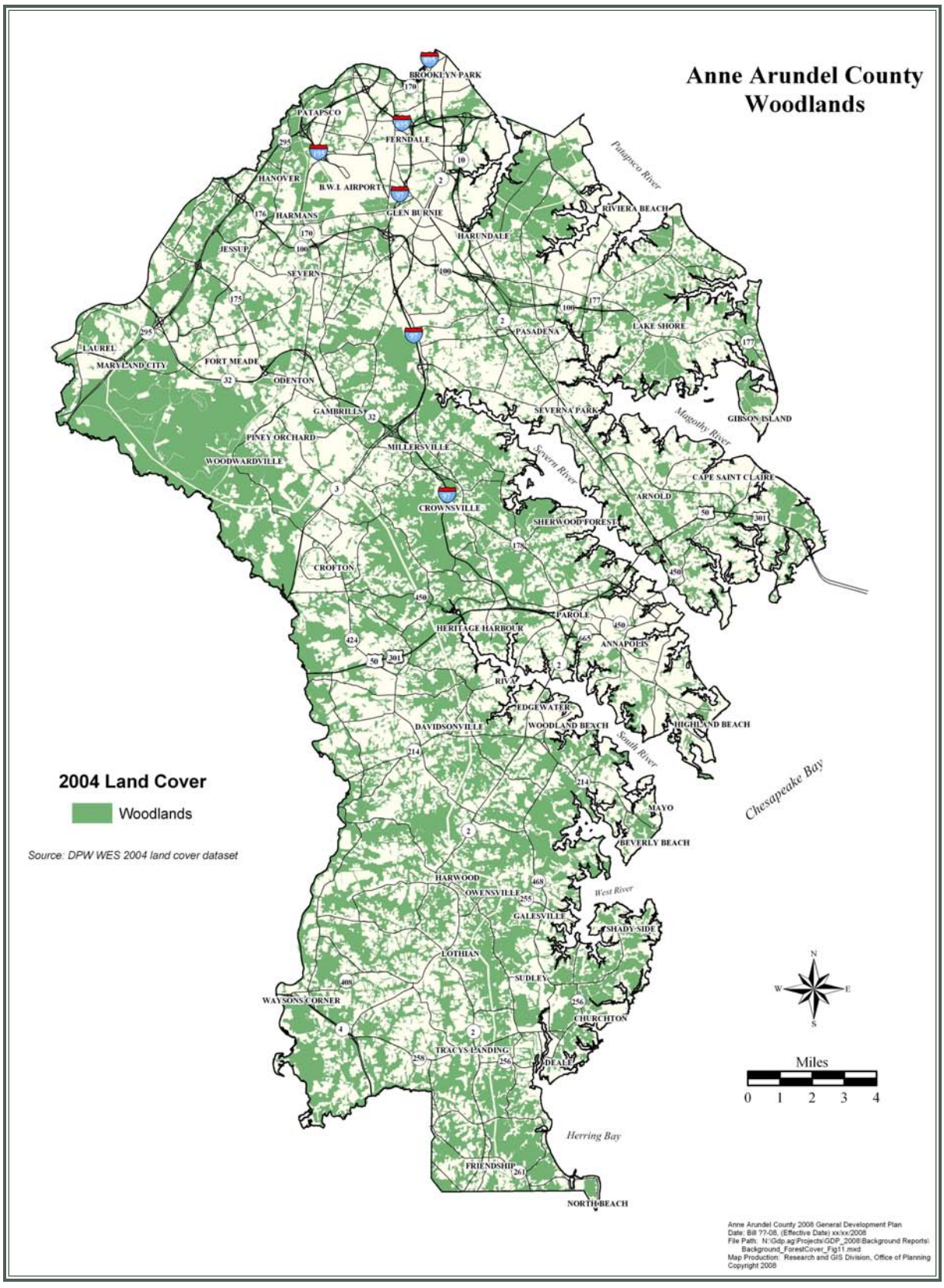


Figure 5–7 Woodlands



- Prioritize properties for the purpose of targeting funds for greenways acquisitions, building on the priorities established in the *2002 Greenways Master Plan* and the *2006 Land Preservation, Parks, and Recreation Plan*.

- Prioritize the use of funds for acquisition of conservation land to give highest priority to properties within the greenway network. Encourage the placement of greenways into permanent conservation easements.

- Establish a proactive outreach program to "market" the Greenways Plan. Work with local land trusts, Riverkeepers, and other environmental groups to promote the benefits of conservation easements and other preservation tools.

- For private properties located in the Greenways network that choose to develop, encourage cluster development and placement of the remaining open space under conservation easements. Assess potential revisions to the Subdivision code to require clustering on these properties.

- Use forest mitigation banks to promote reforestation, greenways protection, and good forest management practices.

- Modify the forest conservation regulations as needed to improve the effectiveness of mitigation, in order to better achieve preservation of continuous and connected hubs and corridors of forested areas. Potential revisions to evaluate include a requirement that, in those subwatersheds ranked highest priority for preservation, forest mitigation must occur in the same subwatershed.

- Create a database of property protected under Forest Conservation easements, and evaluate alternatives for a more comprehensive approach to forest conservation.

Policy 2: Ensure maximum protection of the County's green infrastructure, non-tidal wetlands, designated wildlife refuges and other natural resource areas, even in areas designated as mixed use, in town centers or in areas designated for growth.

Action:

- When reviewing proposed development in areas designated for mixed use or transit-oriented development, in town centers and in other designated growth areas, ensure that adequate protection is provided for the County's green infrastructure, non-tidal wetlands, wildlife refuges and forested areas in order to retain a high quality of life, preserve water quality, and maintain such areas as desirable places to live.

Air Quality

The majority of air pollution in the region comes from mobile sources such as vehicles, area sources such as drycleaners and consumer products, and from stationary sources such as power plants. Approximately two-thirds of Maryland's air pollution originates

outside of the State and is primarily associated with power plants in the Ohio River Valley coupled with existing meteorological conditions. To have input on regional strategies, plans, and programs that have a goal of improving air quality, the County is a member of the Baltimore Metropolitan Council, the Metropolitan Planning Organization for the Baltimore region. In addition, Arundel County has adopted land use and transportation plans and zoning regulations that have a more positive influence on air quality. Mixed-use, transit-oriented and town center developments encourage more pedestrian and transit travel. The County's *Pedestrian and Bicycle Master Plan* promotes biking and walking and the *Transit Development Plan* identifies local bus transit needs and makes recommendations for services to meet those needs. To continue the progress of improving air quality, new policies and actions, some of which originated with the Small Area Plans, are recommended.

Goal: Improve air quality.

Policy 1: Promote and support Transportation Demand Management (TDM) programs and techniques to encourage less driving.

Actions:

- Provide transit access information on County meeting notices and in notices for County-permitted events. Encourage merchants to provide transit information in their advertisements and in their places of business.
- Develop and distribute transit information through printed materials, kiosks, web sites, radio and television broadcasts, etc. Provide transit information on the County's website and all County buildings open to the public including libraries.
- Identify cost-effective Anne Arundel County TDM programs for County employees and all private companies with over 100 full-time employees. Serve as a resource to employers wishing to implement TDM by providing information through printed materials, workshops and other means. Encourage smaller employers to "pool" resources to create effective TDM programs. Support regional efforts to work with employers to provide TDM programs.
- Conduct a comprehensive study of potential park and ride locations to expand ridesharing and transit use.

Policy 2: Market transit-oriented development.

Action:

- Use both monetary and non-monetary incentives (reduced parking requirements, accelerated permit processing, etc.) to transit-oriented developments in order to reduce vehicle trips and automobile emissions.

Policy 3: Discourage incompatible land uses that would have localized affects on pollution. Also discourage cumulative impacts of concentrating multiple sources in an area.

Action:

- Locate incompatible uses at an appropriate distance from specific sources of pollution.

Policy 4: Promote public education of air pollution.
Actions:

- Provide air quality data and methods to improve air quality on Anne Arundel County's website. In addition, provide educational materials on the value of forested land in improving air quality.
- Encourage all public schools in the County to integrate air quality improvement into the curriculum.

Noise

Noise at excessive levels affects our quality of life and the environment. It impacts the lives of many County residents, particularly noise generated from highway traffic, railways, and aircraft. There are many regulations and programs that currently assist in minimizing noise impacts. In 2005, the Maryland Department of the Environment Noise Control Program was de-funded and noise issues are being referred to the local governments for action. Due to this legislative action, the County needs to address policies and actions that will improve the compatibility between land uses.

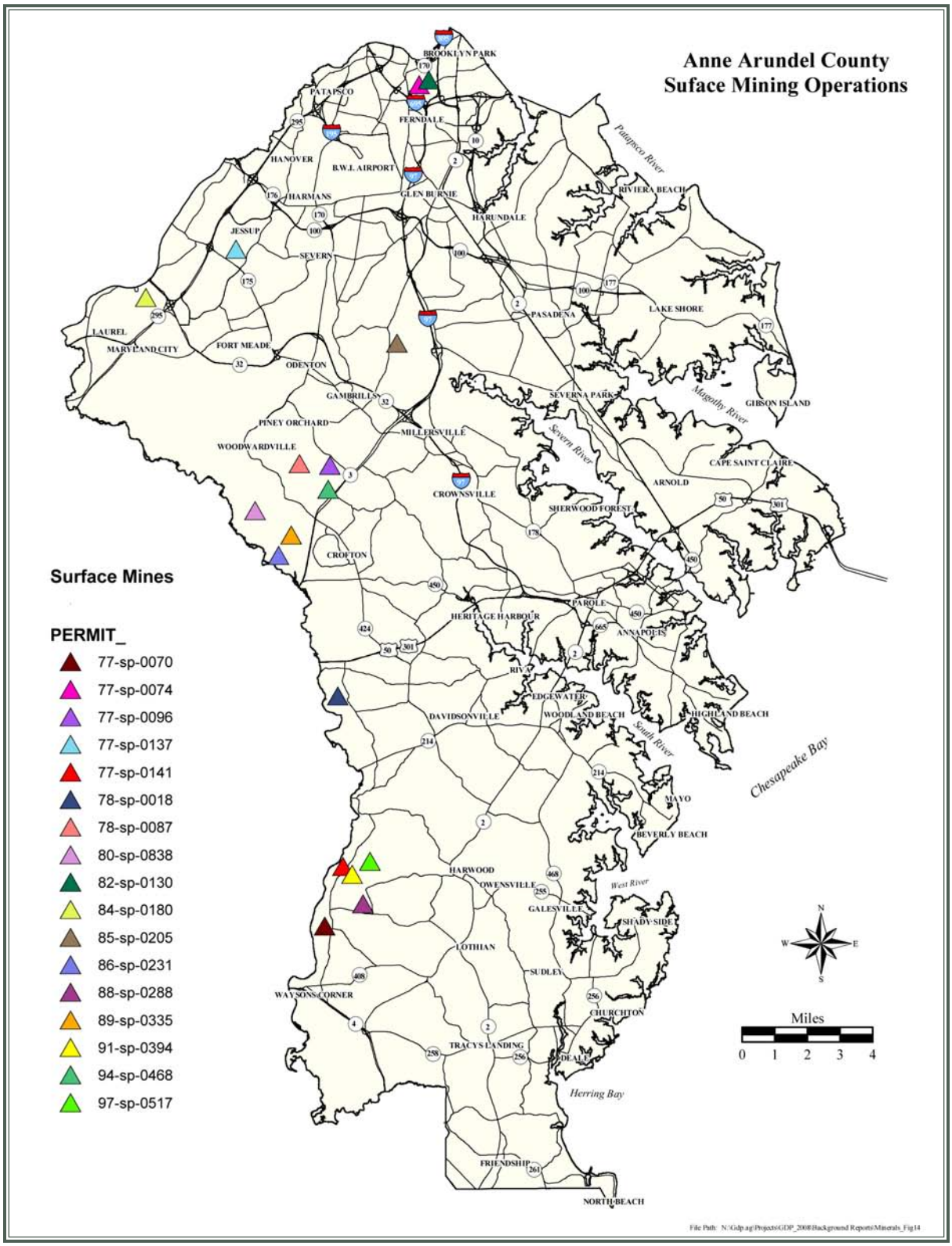
Goal: Reduce noise pollution

Policy 1: Limit future residential and other noise-sensitive land uses in areas exposed to higher levels of noise. When this is not feasible, make sure that innovative techniques are utilized to reduce noise impact to acceptable standards.

Actions:

- Amend the County's noise ordinance to incorporate the authority given to the County by the State of enforcing noise standards and regulations.
- Assess current noise regulations, evaluate existing highway noise buffers and consider buffers on additional roads, airports, and railways.
- Amend the County Code to include the State's noise standards and regulations.

Figure 5–8 Surface Mining Operations



Mineral Resources

Surface mining of sand, gravel, and clay within Anne Arundel County support the local and regional economy in various ways. Sand and gravel extractions are used for highway construction and concrete manufacturing while clay is used to manufacture bricks and other structural clay products. Soil and other loose material are extracted without further processing and are used for fill for activities such as landscaping, building construction, and highway construction and maintenance. Figure 5-8 shows the active mining operations located in the County. Since the adoption of the 1997 GDP, the number of mining operations has decreased from 27 to 17. Several mining operations have been reclaimed and more are in the reclamation process.

All of the existing mining sites that have been reclaimed are located in South County. Some of the planning goals and objectives of the South County Small Area Plan and the Patuxent River Policy plan have been implemented in part via the successful reclamation of these sites to recreational or passive open space. Active mines located in the Critical Area will need to be considered.

While not common, some active mining sites are located in areas of the County planned for residential or industrial use. These sites serve as important redevelopment opportunities for the County once the reclamation process has been completed. Coordination between State and County agencies will be important in ensuring that future reclamation complies with long-term land use planning.

Goal: Promote prudent use of mineral resources and responsible reclamation of mining sites.

Policy 1: Protect natural resources prior to, during, and after mining of sand and gravel deposits.

Actions:

- Update and evaluate existing mining operations and current reclamation plans
- Use reclamation to increase recreational and open space uses in the County.
- Coordinate with the State to ensure that site reclamation plans for active sites comply with the Land Use Plan.

Policy 2: Conserve mineral resources for future extraction.

Action:

- Inventory and map potential areas for future mineral extractions.

Sustainable Development

In summary, the County should promote sustainable development as a broad policy for improving environmental stewardship in protecting water and air resources, preserving land and natural resources, and reducing energy consumption.

Policy 1: Promote sustainable site and building design that will result in more environmentally-friendly buildings, conserve energy and water, improve air quality and reduce solid waste.

Action:

- Evaluate developing a Green Building Program that would require all new construction to be LEED certified, and provide incentives such as density bonuses, tax incentives, fee reductions or waivers, and expedited permitting for those developments that achieve a higher level of LEED standard. In addition, evaluate the provision of tax incentives for existing buildings that achieve a higher level of LEED standard.
- Promote education and provide incentives for existing home and business owners to use green building practices such as replacing lawns with native plants, installing rain barrels to reduce runoff, and retrofitting buildings to be more energy efficient.

Chapter 6: Quality Public Services

Anne Arundel County provides, operates, and maintains a wide variety of public services and facilities to serve local needs. The ability to provide a high level of services is important to the County and citizens alike. Public education, parks and recreation, health, library, and senior services have a direct impact on quality of life for local residents, and high quality public safety services and public water and sewer service are also critical to the health, safety and welfare of County citizens.

The provision of these services is an important component of the comprehensive planning process, as land use and development decisions will have a direct impact on the demand for these services as well as the County's ability to provide them. The following sections will provide goals, policies and actions that will address the public services needs of the citizens and strategies for achieving them at the highest level possible. More detailed information on these services can be found in the GDP Background Reports on Community Services, Public Safety, and Public Utilities. Transportation facilities and services, also important public services, are covered in Chapter 9.

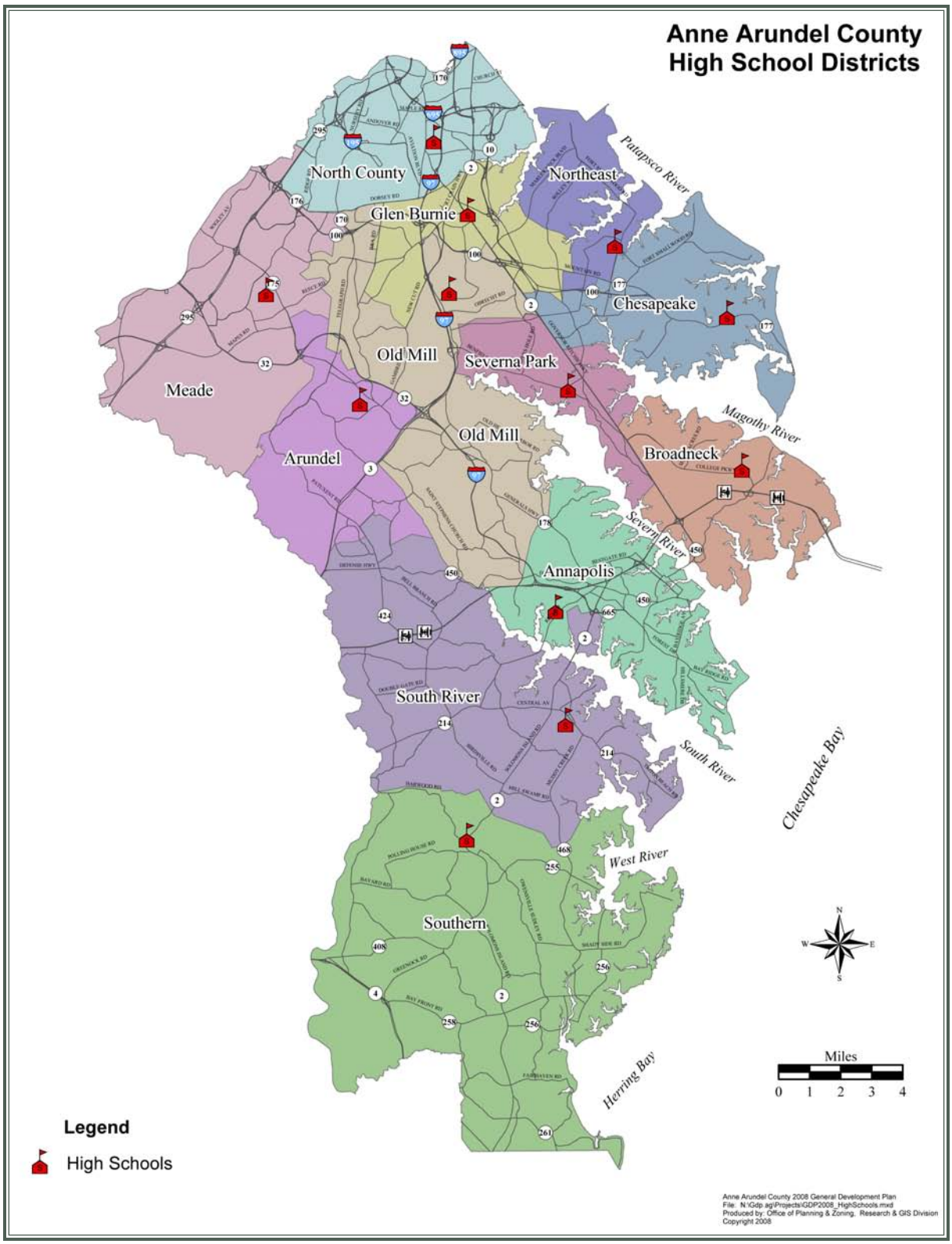
Public Education

The Anne Arundel County Public School System (AACPS) has a current student population of over 73,000 students, and is dedicated to providing a challenging and rewarding educational experience for every child. The public school system includes a staff of over 5,000 teachers working in 118 public schools and has an annual operating budget of nearly $870 million for the current fiscal year. Programs and policies of the public schools are established by an eight-member Board of Education that includes seven members appointed by the Governor and one high school senior who serves as the student representative. The AACPS system includes twelve Maryland Blue Ribbon Schools of Excellence, of which eight are also National Blue Ribbon Schools.

The AACPS system is organized in 12 feeder districts (Figure 6-1) with each district centered on a corresponding high school. Within this array of high school feeder districts are 19 middle schools and 78 elementary schools. The feeder system is a commonly used model for structuring the public education system, and tends to be preferred because it builds upon a consistent stream of pupil enrollment from elementary school, through middle school, and eventually into the corresponding high school. This system helps ensure that the same social networks continually support pupils and enhances community building. AACPS also operates several special schools and centers, including three alternate education centers, three special education centers, and one charter school.

The Anne Arundel Community College (AACC) offers post-secondary educational opportunities for County residents. The community college serves over 54,000 students annually, and 70% of County public high school students who attend college in Maryland do so at AACC. This two-year college has a main campus located in Arnold, with off-site campus locations in the Glen Burnie Town Center (GBTC) and a new campus location at the Arundel Mills Mall.

Figure 6–1 High School Districts



Two important tools used to plan for school facilities are the Educational Facilities Master Plan (EFMP) and the Adequate Public Facilities Ordinance (APFO). The Anne Arundel County Board of Education (BOE) is required by State law to prepare and annually update an EFMP. The 2007 EFMP lists three planning goals. They are essentially to provide for the most effective and efficient use of all school facilities; to provide the ability to conduct an effective instructional program that addresses community needs; and to determine the need for renovation of and/or addition to current facilities to meet changing needs for students, communities, and programs. The County's Adequate Public Facilities Ordinance (APFO) is used as a growth management tool by connecting the approval of development projects to the availability of public facilities including schools. However, utilization rates at several of the County's public schools, particularly with respect to some of the elementary schools, continue to be an ongoing issue both in terms of the impact on a child's quality of education as well as on developers who cannot move forward with their projects.

The goals, policies and actions within the *2009 General Development Plan* provide a comprehensive framework for prioritizing current needs and planning for where future needs will be greatest.

Goal: Provide high quality education and public school infrastructure for all County residents.

Policy 1: Achieve and maintain the most efficient, effective, and equitable use of public school infrastructure.

Actions:

- Prioritize the BOE capital budget and program to utilize school space as efficiently as possible.
- Encourage the BOE to use both funding and redistricting options to maintain the most efficient and equitable use of school capacity.
- Revise the mitigation section of the Adequate Public Facilities code to allow private funding of school facilities through the development approval process.
- Consider requiring all new school construction and school renovations to incorporate green building features and/or meet LEED standards.

Policy 2: Establish cooperative agreements between AACPS, AACC, the County and the private sector to provide greater vocational education opportunities.

Action:

- Identify areas with increasing demand for trade and/or industry-specific vocational education, and develop programs through partnerships

Recreation and Parks Facilities

The Department of Recreation and Parks oversees the acquisition, development, and management of the County's park system, which includes over 260 parks, sports complexes, special use areas, and other sites (Figure 6-2). Major facilities include two indoor swim/aquatic centers, two public golf courses, a baseball stadium, two softball complexes, and three indoor recreation centers. In addition to the above County recreational sites, there are over 18,600 acres of State and Federal land in the County that serve as either recreation or resource land. The vast majority of this is resource land such as the Patapsco Valley State Park, Franklin Point Park, and the Patuxent Natural Resource Management Area, all State-owned, and the Federally-owned Patuxent Research Refuge. A complete inventory of all County, State, and Federal park lands and facilities in the County can be found in the *2006 Land Preservation, Parks and Recreation Plan* (LPPRP).

The detailed framework for recreation and parks planning is established through the LPPRP, which includes an inventory of the County's recreation sites, facilities, and resource lands ,and an assessment of supply and demand based on current and projected population. The most recent assessment was conducted in 2006 and found primary recreational deficits in indoor basketball courts, multipurpose fields for team sports, trails, water access for boating and other water based recreation. Secondary deficits existed in baseball/softball diamonds, picnic pavilions, indoor swimming pools, dog parks, fishing from piers, and ice skating. In addition, the need for a West County Regional Park was identified. This need has recently been met through a long term lease of the U.S. Naval Academy Dairy Farm property as well as additional land acquisition..

Goal: Provide a diverse range of accessible recreational facilities and programs to serve the needs of all County residents.

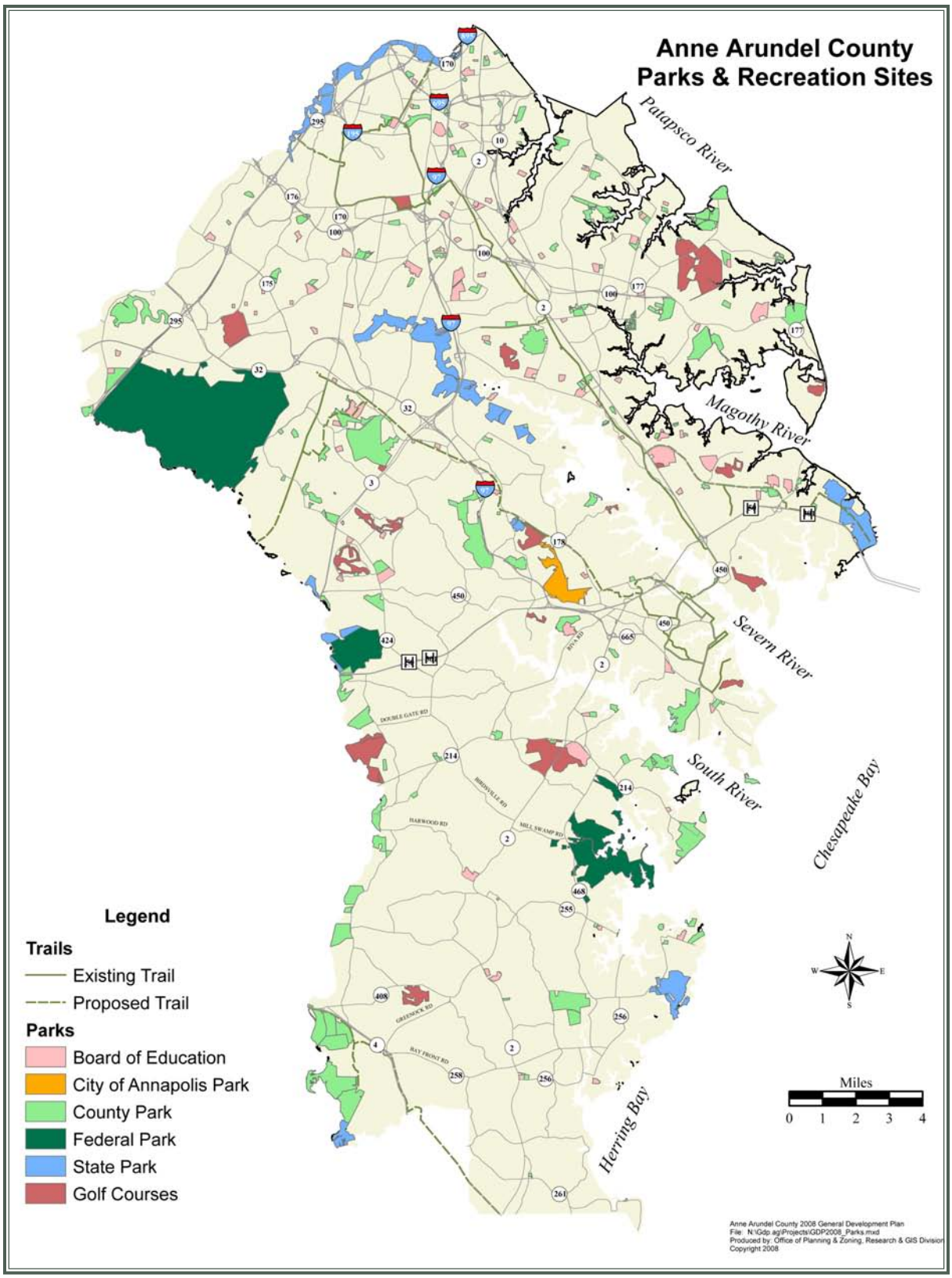
Policy 1: Public facilities should be utilized across multiple agencies to provide increased recreational opportunities.

Actions:

- Formulate additional joint use schedules at school sites to enhance the community's use of public facilities, especially where there are current deficiencies in recreational space.
- Formalize an agreement between the Department of Recreation and Parks and the Department of Aging and Disabilities to utilize Senior Centers for community recreation purposes when space is available.

Policy 2: Improve and expand recreational opportunities so that all communities have sufficient access to facilities and programs.

Figure 6–2 Parks and Recreation Sites



Actions:

- Promote connectivity to existing and/or planned recreational spaces through the subdivision and site development process.
- Assess current and future needs for local community centers. Include an evaluation of needs identified in the Small Area Plans, as well as other areas that may be underserved with regard to multipurpose community space.
- Acquire approximately 850 additional acres of land for active recreation projects, targeting the land acquisition recommendations in the *2006 Land Preservation, Parks and Recreation Plan*.
- Upgrade existing parks and develop new parks in accordance with the *Land Preservation, Parks, and Recreation Plan* and with new initiatives identified in the Department of Recreation and Parks Capital Improvement Program. Continue to use Program Open Space and other State and Federal programs and grants as available to implement these projects.
- Prepare a master plan for use of the Naval Academy Dairy Farm property in Gambrills to serve as a passive use regional park for the West County area.
- Complete an inventory of sites in the County that provide public waterfront access, make it available on the internet, and identify future sites as needed to increase public access.

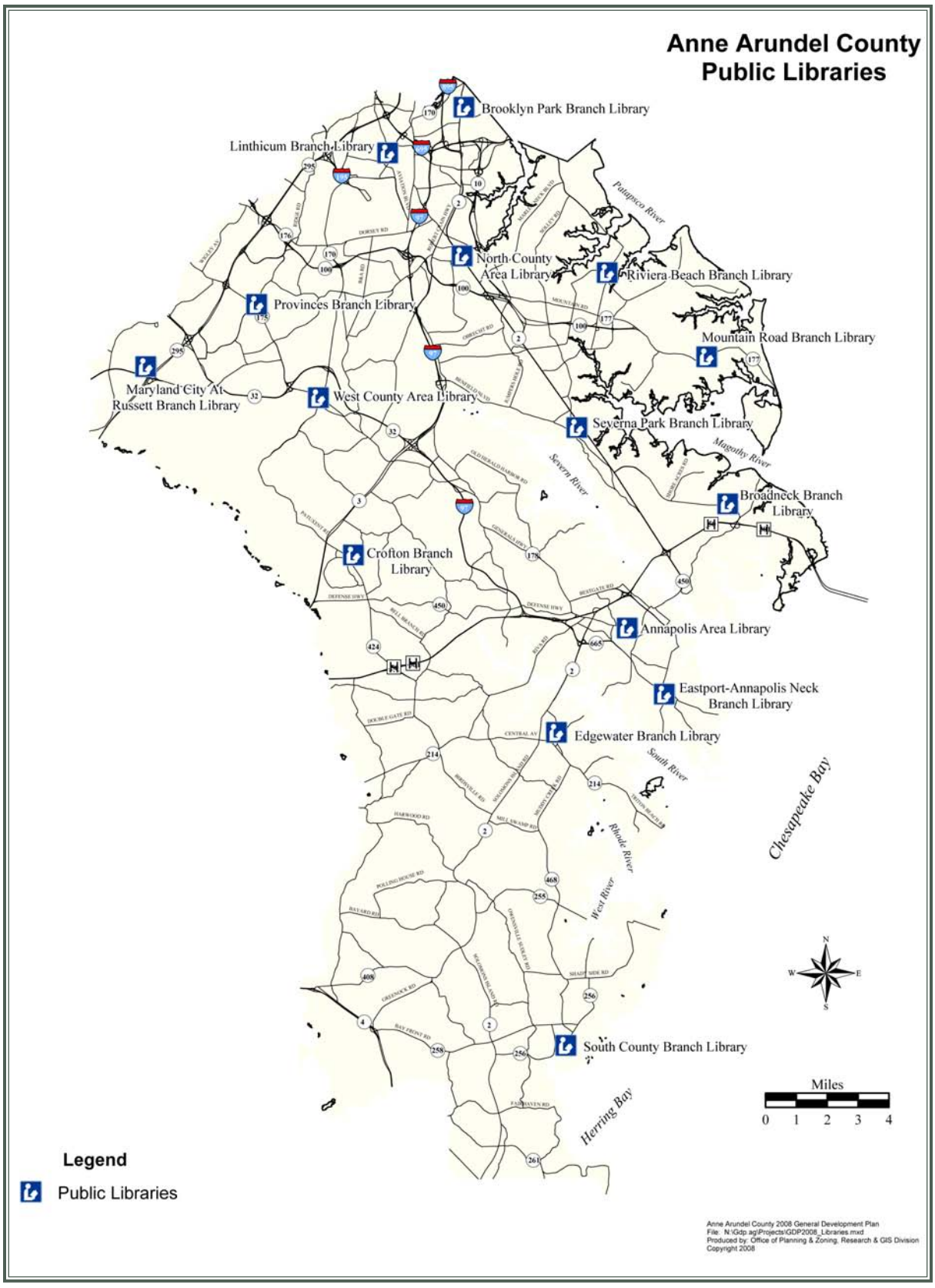
Library Services

Headquartered in Annapolis, the library system is a quasi-independent agency governed by a 24-member Board of Trustees who serve on a volunteer basis. Today, the library system has three regional libraries and 12 branch libraries, which are geographically dispersed throughout the County to serve as many local communities as possible (Figure 6-3). These facilities provide a wide range of services and programs that serve a diverse population.

The three regional libraries serving the County are the Annapolis Area Library, the North County Area Library, and the West County Area Library. The oldest, the Annapolis Area Library, was established in 1965 and underwent major renovations in 1989. The North County Area Library, located in Glen Burnie, opened in 1969. The library system's newest addition is the West County Area Library. Located in the Odenton Town Center, this regional library opened in 2004 and replaced the former Odenton Branch Library. With 40,000 SF of space, it is the largest of the County's library facilities. By locating the new facility in the Town Center, the County hopes to ensure maximum utilization of the resource for years to come.

The Anne Arundel County Public Library (AACPL) and its Board of Trustees maintain and periodically update a Facilities Master Plan to guide the provision of library services

Figure 6–3 Public Libraries



in the County. The Facilities Plan includes a needs analysis which projects space needs, analyzes hours of service and other service factors, and identifies repair and renovation projects needed at the various branches in the system. Projects are then prioritized by need and funding is requested through the County's capital budget process each year.

The most recent Facilities Plan Update was completed in 2004. The assessment of space needs concluded that the Annapolis Area Library and the North County Area Library are currently inadequate in size to meet the needs of their existing service populations. The Facilities Plan provided several options for updating the Annapolis and North County Area Libraries. The 2004 Facilities Plan also included a performance comparison between the AACPL library branches and other "peer library" systems. Performance indicators analyzed included facility space per capita, staffing, circulation of materials, customer visits, hours of service, and revenues and expenditures. Results from the peer library comparison indicated several items for consideration by the AACPL during its planning review process. These recommendations include reviewing hours of operations; reducing personnel costs; and reviewing the approach for allocating operating funds for materials. Each of these recommendations was meant as a way to make the AACPL more efficient in its operations.

Goal: Provide a library system that continues to evolve to meet the changing public information needs.

Policy 1: Library space should be planned and used based on the needs and/or demands of specific communities or user populations.

Actions:

- Complete expansions of the North County and Annapolis Area Libraries to meet current and projected needs.
- Increase the efficiency of library services by reviewing operations including hours of service and allocation of funds for materials.

Health Care Services

Public health services are another important component in the wide array of community services provided to residents of Anne Arundel County. Public health includes both community and environmental health, and the promotion of public health is accomplished through nearly 30 individual programs and services provided by the County, primarily through the County Department of Health and its partner agencies.

Public health services are provided at eight health centers located throughout the County as shown in Figure 6-4. At these facilities and other locations, the County Health Department provides a wide variety of health services to County citizens. The services generally

fall under the five broad categories of behavioral health, clinic and school health, community health, environmental health, and health information and promotion.

The public health programs offered by the County rely on State and local funds as well as grants to cover their operating costs. Approximately 42% of the Health Department's current fiscal year budget comes from grants. The majority of these are State grants, some of which use Federal dollars. Since a variety of factors can affect the availability of State and Federal grants on an annual basis, funding for various County health programs is periodically at risk. As a result, the Health Department has at times been forced to reduce or eliminate valuable services due to lack of funding, including some grants to community agencies for prevention programming. Therefore, in order to allocate funding most efficiently, the Health Department has established five major priorities: eliminating health disparities, being prepared for emergencies, preventing and managing chronic illness, keeping children healthy, and maintaining a safe and healthy environment.

In terms of health facilities planning, the long term planning goals are to locate these facilities in areas that are convenient for those with greatest demand. Supplementing public health facilities by way of encouraging the development of private health care facilities is vital to sustaining quality care for all citizens in need. In addition, the Health Department maintains a multitude of studies and consulting documentation that enables the accurate assessment of community health conditions.

Goal: Provide quality health care opportunities convenient to all County residents.

Policy 1: Locate public health facilities and services in areas convenient to those with greatest demand.

Action:

- Allocate funds to expand environmental health and school health programs as needed.

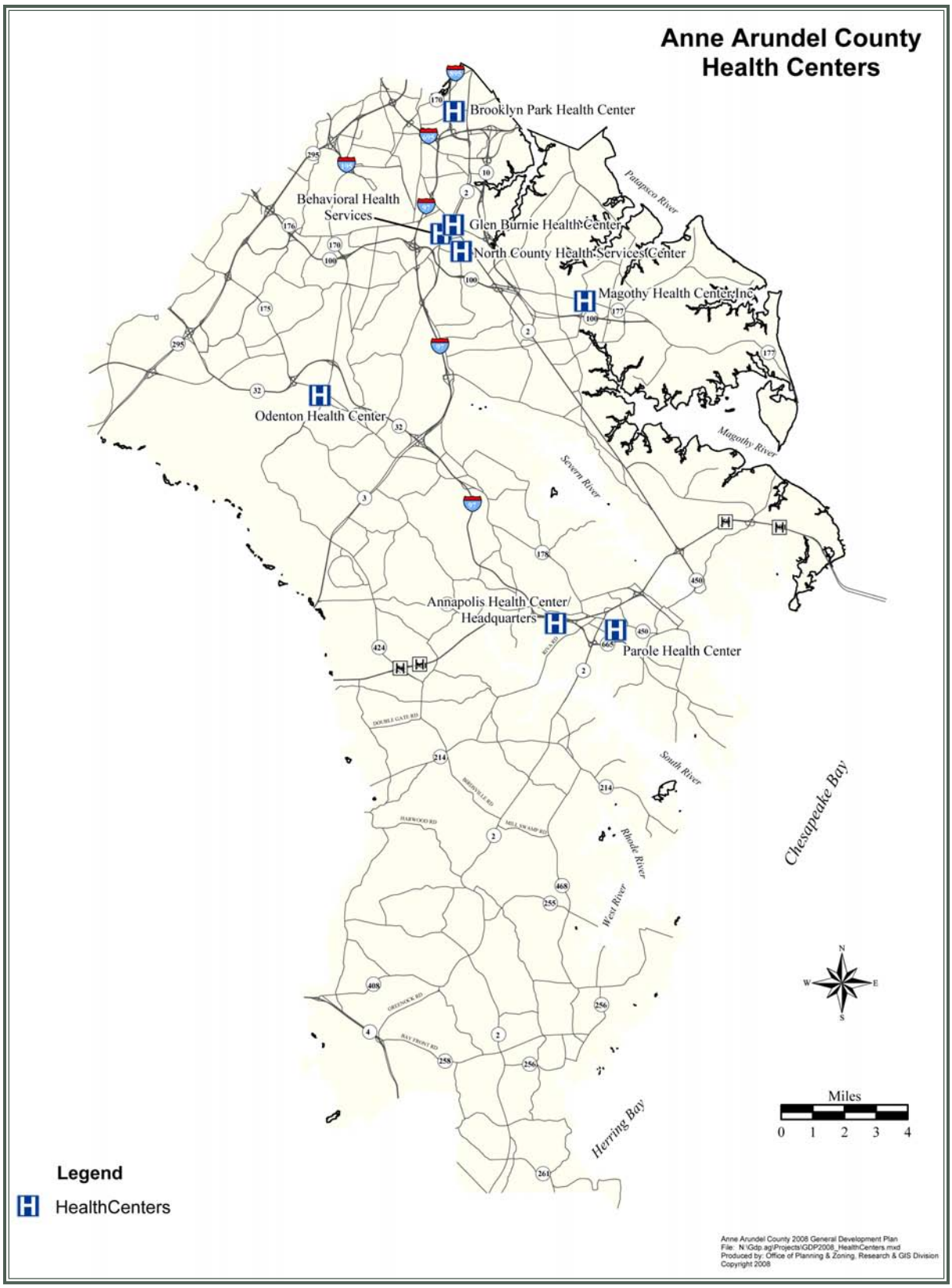
Policy 2: Supplement public health facilities by encouraging development of private health care facilities.

Action:

- Expand public health programs serving low income residents.

Policy 3: Increase community awareness of health and wellness issues.

Figure 6–4 Health Centers



Action:

- Partner with Anne Arundel Medical Center and Baltimore Washington Medical Center to present programs on health and wellness issues.

Senior Citizens Services

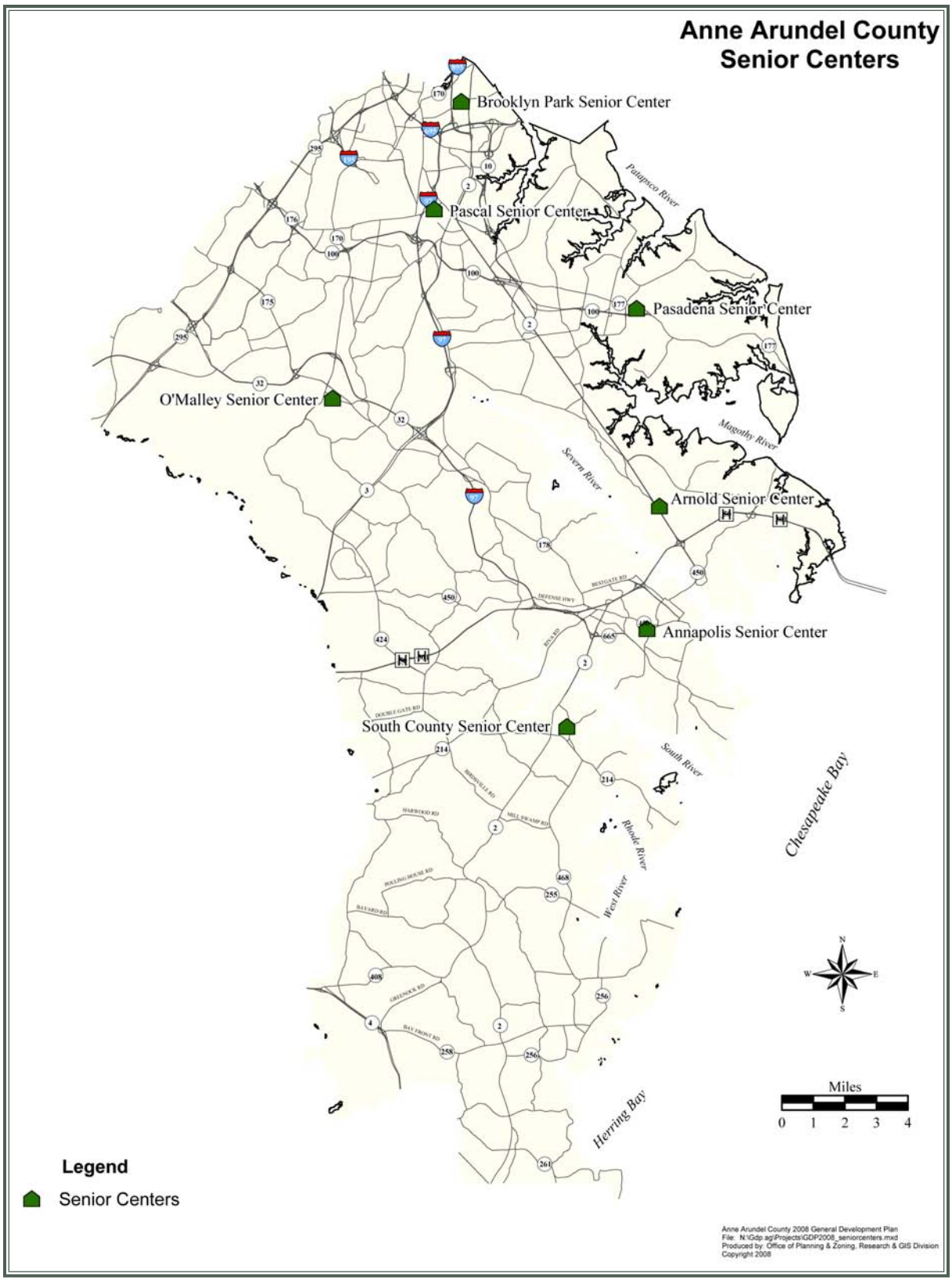
The County Department of Aging and Disabilities administers over 20 individual programs and operates seven senior centers throughout the County, as shown in Figure 6-5. These programs and facilities offer many services and activities for County residents 55 years of age and older and are well used by local area residents. All seven are multi-purpose centers focused on serving active seniors 55 years of age and older.

The Department of Aging and Disabilities also operates specialized paratransit services to meet the mobility demands of its client population. This service is provided using 39 small, cut-away type buses or vans. The department's bus fleet is one of the largest for this type of agency in the State and serves approximately 160,000 one-way trips annually. Additionally, the Department has an emergency management team that works hand in hand with the Office of Emergency Management by providing transportation and shelter for emergency situations. This is the first such partnership in the State. Under a planned shift of responsibilities, the department will be assuming the role of operating the overall transit services (fixed and paratransit) for the County in the future. The current Transit Development Plan identifies 16 new routes to be added to the transit system. Expansion of routes is generally based upon availability of Federal and State funds and local matching funds.

In addition to the above services, the Department also operates a nutrition program through which it provides nutrition services at 20 locations throughout the County, including the seven senior activity centers, several senior housing facilities managed by the County Housing Authority, some community centers, and some freestanding sites. The nutrition service is a federally funded program that is operated by the County.

While Anne Arundel County provides services to seniors through its public facilities including senior centers and health centers, privately owned facilities provide a valuable addition to this much-needed component of the community infrastructure. Assisted living facilities are one way to provide seniors with a more cost-effective option to meeting their daily living needs. The County has over 80 assisted living facilities licensed by the State of Maryland. In addition, there are nearly 25 privately owned nursing homes in the County. Privately run apartment and housing complexes are another option for seniors. According to the Department of Aging's current senior housing inventory, there are approximately 10 retirement apartment communities, 15 apartment communities with senior discounts, 3 retirement communities and 6 continuing care retirement communities located in the County. The County will work with private developers to continue to provide housing that meets the needs of senior citizens, as well as meet the increasing demand for assisted living and nursing facilities.

Figure 6–5 Senior Centers



Goal: Provide services and opportunities for senior citizens and persons with disabilities to lead healthy, independent, and fulfilling lifestyles.

Policy 1: Locate senior housing options near health, EMS, transportation, and retail services.

Actions:

- Identify sites with development or redevelopment potential for senior housing that are located near needed amenities.
- Work with private developers to provide a range of housing options for senior citizens including assisted living facilities, retirement communities, affordable independent living communities, and continuing care communities.
- Address additional space needs at the Brooklyn Park Senior Center.
- Complete planned expansion of the Pasadena Senior Center.

Policy 2: Provide for the needs of persons with disabilities in housing, transportation, and public services planning.

Actions:

- Ensure that new development and redevelopment conforms to current ADA and FHA Fair Housing regulations.
- Provide public transit services that accommodate the needs of persons with disabilities.
- Promote affordable accessible housing units for persons with disabilities.
- Provide administrative relief through the regulatory process for unique issues related to accommodating accessibility to structures and pedestrian systems for seniors and persons with disabilities.

Public Safety Services

Public safety services are some of the most important services a local jurisdiction provides to its citizens. Fire protection, emergency response, and police protection are services that all local residents rely on, and citizens place a high value in knowing that these services will be adequate and timely when needed. The County therefore considers the provision of a high level of public safety services to be a priority.

The provision of these services is also an important component of the comprehensive planning process, as land use and development decisions will have a direct impact on the demand for these services as well as the County's ability to provide them.

Fire Protection and Emergency Services

The County's Fire Department is one of the largest combination fire departments in the nation, operating out of 30 fire stations (Figure 6-6) with 793 career firefighters, 517 certified volunteer firefighters and 36 civilian support personnel. All personnel, both career and volunteer, are certified in accordance with the National Fire Protection Association standards.

The Fire Department conducted a Fire Station Location Study in 2008, which includes a review of current levels of service and allocation of resources, an analysis of current and projected demand, and an assessment of station locations and response times. The study analyzed alternatives for delivery of services that included relocation of fire stations, renovations or expansions of facilities, and/or redeployment of fire and EMS units. This study will enable the Fire Department to better assess future challenges and determine how to best allocate funds and resources in the future.

The Fire Department also contains the Office of Emergency Management (OEM), which is responsible for the overall coordination of County resources during manmade or natural disasters. This is accomplished by the development of a countywide Emergency Operations Plan for all hazards. This plan is updated annually with the assistance of all County agencies or departments that are involved in an emergency response. The Emergency Operations Plan outlines the organization for integrated emergency management and an operational plan for coordinated response. The plan assigns actions to be taken in various circumstances by County agencies organized into sixteen Emergency Support Functions.

OEM is also responsible for managing the Emergency Operations Center during large-scale emergencies. The Emergency Operations Center (EOC) is the centralized location coordinating resource requests and deployments. The Office strives to maintain a high level of readiness to respond appropriately to all disasters. Through a program of integrated emergency management, all county agencies and certain volunteer agencies and groups plan for hazard mitigation, emergency preparedness, emergency response operations, and recovery assistance.

Additionally, OEM facilitates the development, updating, and training of emergency management with the departments and agencies of Anne Arundel County. In the planning stages, OEM is responsible for maintaining its Emergency Operations Plan and consulting with County agencies to ensure that the Plan reflects the current situation in the County. It is essential that County agencies and departments report changes or updates in their emergency operations processes to OEM as outlined in the Emergency Operations Plan.

Figure 6–6 Fire Stations and Fire Company Areas

Due to its coastal location, emergency preparedness during tropical storms and/or hurricanes is particularly important in the County. Portions of the County are susceptible to various levels of coastal storm surge as a result of tropical storm and hurricane activity. The Storm Surge Map shown in Figure 6-7 indicates areas of potential tidal flooding under various hurricane conditions, as identified by the U.S. Army Corps of Engineers in a recent evacuation study. Information of this type is used by emergency planners in the County in conducting community outreach, evacuation planning, resource deployment, and in locating emergency shelters.

Sea Level Rise Planning

Sea level change has been occurring in the Chesapeake Bay area as well as globally, and a rise in sea level has been documented over the past century or more. Regional land subsidence in the Bay area also contributes to rising sea levels in relation to land mass. While the extent and range of impacts may vary, rising sea level will continue to threaten low-lying coastal plains making them vulnerable to erosion, flooding, inundation and salt water intrusion.

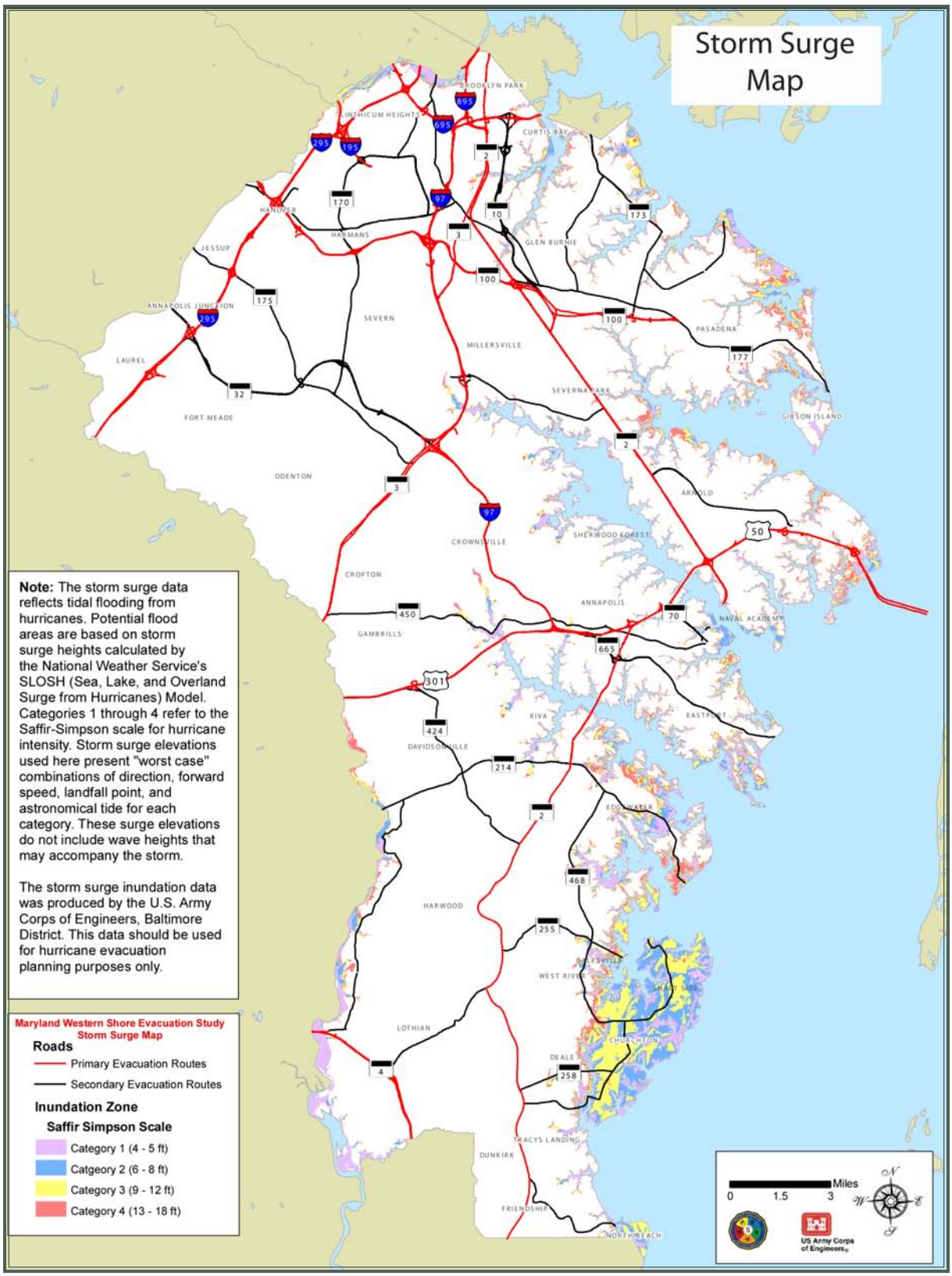
A rise in sea level will continue to have an effect on Anne Arundel County's 520 miles of shoreline and low-lying coastal areas. The shoreline will change. Areas currently inundated only periodically under storm and hurricane conditions may become permanently inundated as seawater migrates inland. Increased property damage due to standing water and flooding is possible. As sea level rises, so does the elevation of storm surge, further exacerbating the situation. Erosion will continue to occur along the shoreline as it adjusts to encroaching seawater, and will impact fringe marshes and tidal wetlands as well as increase sediment loads to the Chesapeake Bay.

While sea level changes have played a historic role in shaping Anne Arundel County's coastal environment, understanding how to address incremental and potentially significant changes in sea level is a difficult task. The challenge is further complicated by the broad spectrum of coastal issues and interests involved, as well as the inherent uncertainty associated with projecting sea level rise and its specific localized impacts. Despite these challenges it is clear that coastal managers and planners must plan for sea level rise. Initiating the development of an integrated planning and implementation strategy now will position the County to successfully adapt to the impacts of sea level rise and minimize future associated damages.

Police Protection and Crime Prevention

Currently, the Police Department employs a workforce of 938 personnel including 690 sworn officers and 248 civilians. There is also a part-time complement of 139 school crossing guards, who direct more than 244 school crossing posts during the school year, and more than 90 volunteers. Twenty-one other part-time positions, some funded through grants, are assigned to other special needs throughout the Department such as Crime Analysis and the Crime Laboratory.

Figure 6–7 Storm Surge Areas



The County has four police district stations that are strategically located to provide the greatest access to serve the area (Figure 6-8). These district stations provide administrative support to patrol beats within the district and are used to process and hold arrested persons. They are also often used by the communities for public meetings. The Police Department's facilities are located to serve its community-oriented policing philosophy as well. Facilities are decentralized in order to provide the most accessible service and response to the citizens of the County.

The Police Department anticipates the need to establish at least three additional police beats in the future in order to accommodate the increase in calls for service that is anticipated along with new population growth. The Department also foresees the need to establish a fifth (central) police district in the future in order to manage increases in service demand.

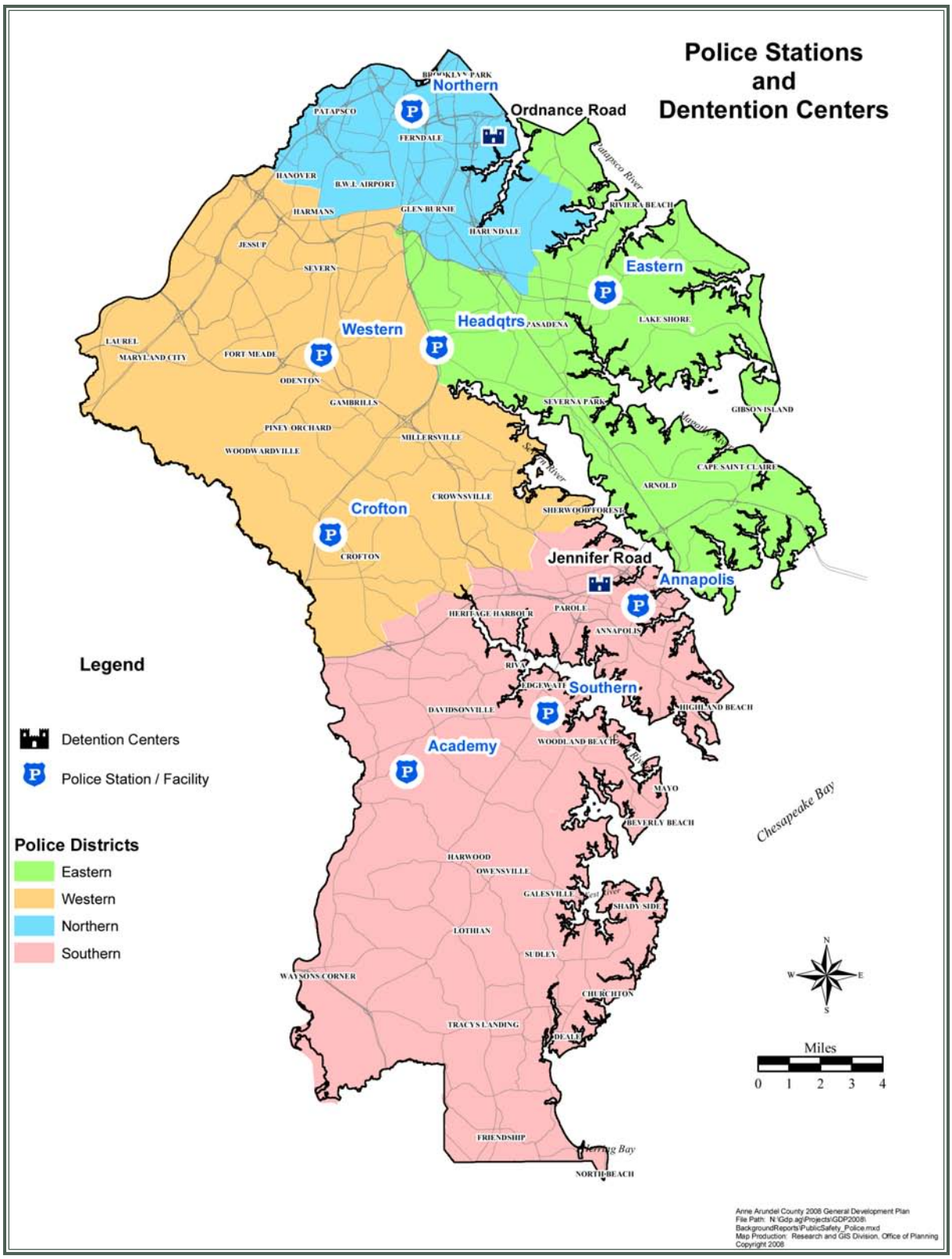
In addition, there are several facility improvements that will likely be needed. The Criminal Investigations Division is currently housed at the Crownsville Hospital site, and several deficiencies have been identified that indicate a likely need for a new facility. Also, a new Training Academy facility will be needed in the future since the current facility is outdated and does not meet current needs of the Department. Lastly, an expansion of the Crime Lab located at Police Headquarters is needed.

The County Department of Detention Facilities operates two detention centers and provides public safety services through the detention and confinement of pre-trial detainees and adjudicated offenders in safe and secure institutions, and by offering alternatives to incarceration as well as services to prepare inmates for re-entry to society. The Department's primary functions are organized under two bureaus. The Bureau of Security and Support Services provides security operations, maintenance, supplies, and other support services to the County's detention facilities. The Bureau of Inmate Services provides classification and records services, intake and pretrial investigations, supervised release, and volunteer and program services.

Detention facilities have also been impacted by future growth both in terms of additional facility space needs as well as support services and case managers. Both the Ordnance Road facility and the Jennifer Road facility are in need of expansions in the near term.

Anne Arundel County's relatively low crime rate and the Police Department's commitment to continual assessment and planning have served to maintain a safe environment for County residents. However, growth experienced in the greater Baltimore-Washington area and in the County over the past decade has created significant challenges for the Department. The County will continue to monitor future growth patterns in order to help assess future demand for all of the public safety services it provides.

Figure 6–8 Police Stations and Detention Centers



Goal: Provide a high level of police protection, fire protection, emergency response, and disaster relief services to all citizens.

Policy 1: Continue to develop innovative and proactive enforcement programs to improve upon current programs and operations and to enhance the effectiveness of public safety services.

Action:

- With projected growth in the County equating to over 15,000 additional calls for service, make necessary plans to establish at least 3 additional police posts, or patrol beats.

Policy 2: Remain dynamic in the education and training of public safety department personnel to skillfully and efficiently prevent, react, and respond to emergencies or man-made or natural disasters.

Action:

- Recruit and retain highly qualified professionals for public safety positions, and hire more civilian employees for certain jobs to free up uniformed personnel for reassignment.
- Continue to promote integrated emergency management among all County agencies through the Emergency Operations Plan, and ensure that all agencies coordinate their infrastructure and facility planning programs with OEM so that emergency management needs and practices are addressed.
- Promote education and training of local citizens to serve as volunteers during emergencies and disaster relief efforts.

Policy 3: Consolidate services where feasible in order to increase efficiency and address budget limitations.

Actions:

- Make plans as needed to establish a fifth police district in the County which is projected to be needed within the next 10 years, and identify a future site for a fifth District Station.
- Identify a future site for a new Criminal Investigation Division police facility, which is currently housed in a deficient building on the Crownsville Hospital site.
- Identify a future site for a new Police Training Academy facility to meet the Police Department's need for a more state-of-the-art facility.
- Complete capital projects to replace the Marley Fire Station and expand the Jessup Fire Station.

- Allocate funds as needed to implement the recommendations of the Fire Station Location Study completed in 2008.
- Plan and fund needed expansions at the Ordnance Road and Jennifer Road Detention Centers.

Goal: Protect manmade and natural resources in coastal areas vulnerable to rising sea level.

Policy 1: Account for potential effects of future sea level rise in making land use and planning decisions relative to planned development, provision of public infrastructure, emergency preparedness, and environmental protection.

Actions:

- Partner with the MD Department of Natural Resources to develop an integrated planning strategy that addresses potential threats in areas vulnerable to sea level rise impacts.
- Develop a strategic plan for a phased implementation response to achieve either avoidance or reduction of impacts to property, infrastructure, cultural and natural resources.
- Establish policies to guide the relocation, extension or expansion of public infrastructure in at-risk areas.

Public Water, Sewer and Solid Waste Services

Anne Arundel County provides public water, sewer, and solid waste collection services to its residents. Planning for these public utility services is closely coordinated with comprehensive planning efforts. The County's *General Development Plan* determines the type and density of land uses in the County and directs growth and development to appropriate areas. The provision of public utilities is then planned in accordance with the *General Development Plan*. The goals, policies and actions of the GDP will guide County planners in determining where extensions of public utilities will be needed in the future, where capacity expansions will be required, and where deficiencies are likely to occur so that preventive steps can be taken.

Water and Sewer Facilities

The County currently has over 111,000 public sewer connections and treats approximately 34.1 million gallons per day of wastewater. There are approximately 107,700 public water connections that have an annual average day demand of 31.1 millions gallons per day. Public water and sewer service in the County is provided through use of an enterprise fund. To adequately address specifics of the extent, adequacy, sizing, staging, and other characteristics of the public water and sewer facilities, the County prepares a *Water and*

Sewer Master Plan that is updated every three years to ensure a sufficient supply of water will be collected, treated and delivered to the points of use where it is programmed for service, and that wastewater will be collected from and extended to areas programmed for growth and delivered to points best suited for waste treatment and disposal or reuse. The most recent update to the Water and Sewer Master Plan was completed in 2007. In addition, Chapter 10 in this GDP provides a comprehensive analysis of capacity needs and impacts to the water and wastewater supply systems as well as mitigation plans to secure a safe and adequate system.

Goal: Provide and maintain a safe and adequate capacity for wastewater treatment services and water supply to meet current and future needs.

Policy 1: Encourage water conservation and protection of the County's groundwater resources.

Actions:

- Continue to participate in regional planning efforts to monitor and protect groundwater resources that serve the County.
- Continue assessment of water quality problem areas.
- Improve educational efforts for water conservation.

Policy 2: Ensure adequate capacity at the County's Water Reclamation Facilities.

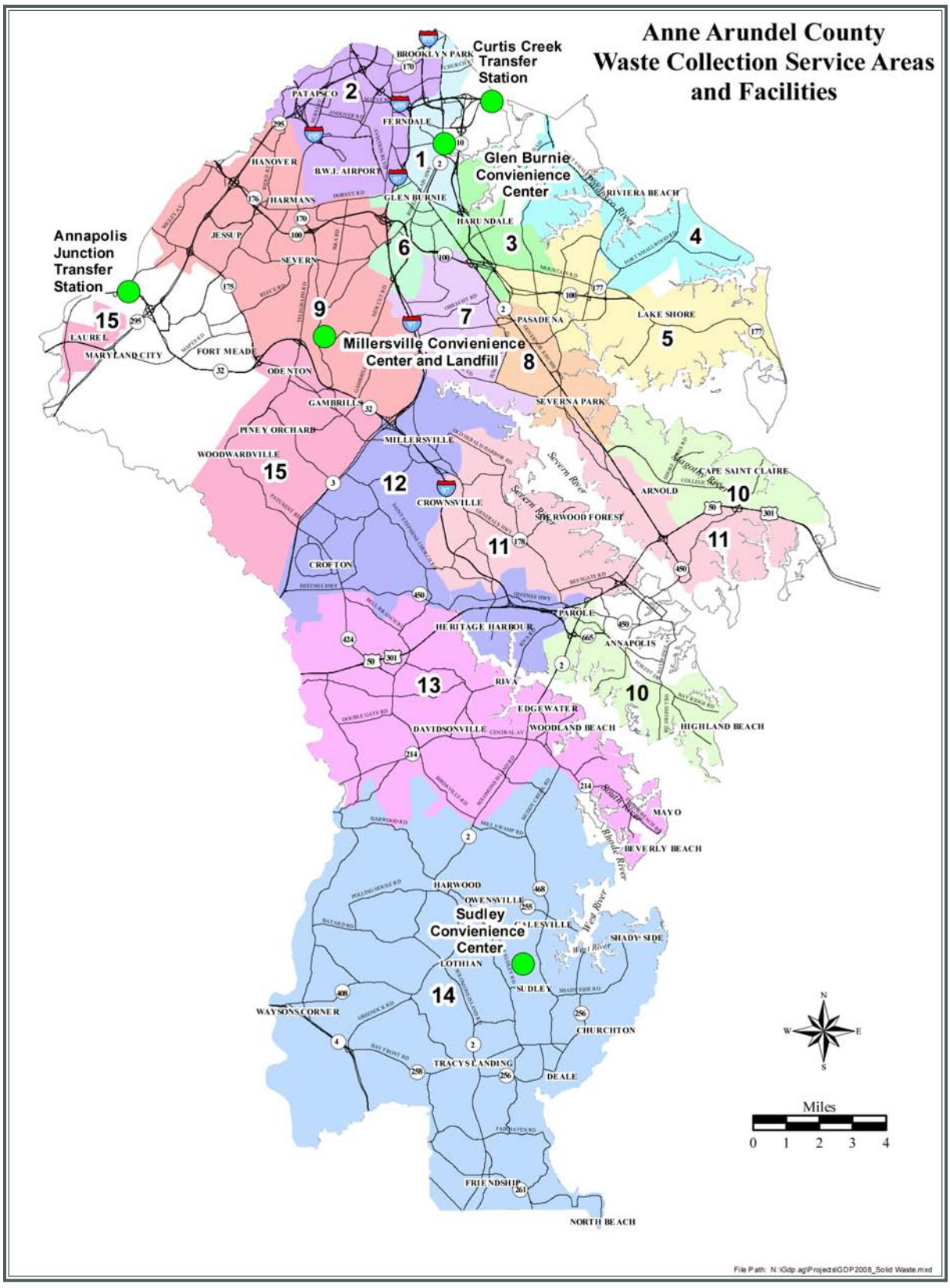
Action:

- Continue to evaluate alternatives at Water Reclamation Facilities that will redirect existing and future flows to service areas where facility sites can best support future upgrades and meet capacity demands and permit requirements.

Solid Waste Facilities

Municipal solid waste (MSW) is generated by County residents, businesses, industries, and institutions. Waste types include residential, commercial, industrial, construction and demolition debris, controlled hazardous substances, dead animals, bulky or special wastes, vehicle tire, wastewater treatment plant biosolids, and septage. Wastes generated by over 150,000 households are collected by the County through the use of private contractors. All other household solid waste is self-hauled to the County's landfill and convenience centers. The majority of commercial and industrial solid waste is transported to non-County facilities. The County is divided into fifteen collection service areas (Figure 6-9) for curbside collections. The service provided includes twice per week trash collection, once per week recyclables collection, and once per week yard waste collections. The County operates three convenience centers (Millersville, Glen Burnie and Sudley) and the

Figure 6–9 Waste Collection Service Areas and Facilities



Millersville Landfill Resource Recovery Facility (MLFRRF) for disposal and recycling. Community cleanup events and household hazardous waste collection events are scheduled throughout the year. Other privately owned and operated facilities include the Annapolis Junction Transfer Station and the Curtis Creek Transfer Station that service the private sector. Rubble waste that is not recycled is disposed at facilities outside of the County with the exception of a small amount that is disposed at the MLFRRF.

Anne Arundel County developed a new Recycling Outreach Initiative in 2008 with a goal of increasing the residential recycling rate to 50%.

The County has prepared a comprehensive solid waste management plan which covers at least a 10-year planning horizon and is updated at a three-year interval if necessary. The Plan provides a framework for implementing future solid waste disposal needs through an integrated system of reduction, reuse, recycling, resource recovery, and disposal. To meet the plan's objectives, Anne Arundel County developed a new Recycling Outreach Initiative in 2008 that focuses on increasing the residential recycling rate from 31% to 50 %, decreasing waste generation, and reducing the loading rate at the County's only sanitary landfill. The County has implemented a comprehensive marketing campaign to inform the public of expanded recycling services, has established a recycling website to promote recycling and waste minimization, and has made several enhancements to the recycling service provided to citizens. In addition, the 4R's Project provides an optional recycling curriculum for teachers in the public school system, and Recycling Specialists regularly conduct numerous educational events in elementary, middle and high schools. The *2003 Solid Waste Plan* has identified that the establishment of recyclables recovery facilities or waste processing facilities in the County would conserve landfill space, increase recovery of recyclable materials, increase recycling rates, be cost-beneficial to the County and lessen the dependence on the Millersville facility. There continues to be concern regarding the availability of sufficient outlets for the processing and recycling of grass and leaves generated by County residents.

Goal: Efficiently manage, reduce, and recycle solid waste.

Policy 1: Optimize recycling programs, systems, and outreach with a clear priority toward recycling over land disposal.

Action:

- Develop and implement a multi-faceted approach to education and promotion of recycling within the County to convey the importance as it relates to the preservation of natural resources and the County's landfill.

Policy 2: Capitalize on options to maximize the life expectancy of the Millersville Landfill and delay replacement long into the future.

Action:

- Increased recycling translates to conservation of landfill capacity and extended landfill life. To that end, continue to promote and expand recovery of recyclables at the landfill and convenience centers to the maximum extent practicable.
- Maximize existing landfill capacity through efficient operation (maximize compaction and minimize cover material usage).
- For future undeveloped disposal areas, evaluate new engineering technologies and operational techniques that could lead to expanded capacity and site life.
- In addition, explore opportunities to address solid waste disposal and recycling needs on a regional basis thereby realizing the benefit of the economies of scale and reducing net costs.

Policy 3: Recycle at least 50% of the residential solid waste collected at households within the County.

Action:

- Continue to implement a County wide marketing campaign challenging all residents to recycle 50% of their waste. The campaign needs to demonstrate how easy it is to recycle and to provide assistance and information on how to achieve the 50% goal in the shortest amount of time possible. Evaluate the service delivery system on a regular basis to ensure that recycling is more convenient and a higher priority than disposal.

Policy 4: Former landfill sites and adjacent properties should not be redeveloped with incompatible land uses. Residential uses and other land uses relying on well water should not be located on or near former landfill sites without appropriate clearance from governmental agencies.

Actions:

- Conduct a study of former landfill sites to confirm their current status and assess their current and future suitability for development and to identify suitable land uses. Develop a Closed Landfills Map that identifies these sites.
- When development or permit applications are submitted for properties located on or adjacent to former landfills, as identified on the Closed Landfills Map, it should be noted as such in development review comments and on plans accompanying permit applications, and must also be sent to Maryland Department of the Environment, the Health Department, and the Department of Public Works Waste Management Services for review and comment.

Policy 5: Prohibit new solid waste landfills in locations near residential areas that rely on water supply wells and near environmentally sensitive areas.

Action:

- Evaluate the County's long-term landfill needs to assess the impacts of restricting future landfill locations. If feasible, revise the County's Zoning Ordinance to remove rubble and land-clearing debris landfills as an allowable use in the RA zoning district.

Chapter 7:
The Land Use Plan

Decisions and policies regarding land use are one of the most important components of a local comprehensive plan. The location, amount, and type of development to be permitted will impact everything from public services and infrastructure to water resources and sensitive areas, from community character to fiscal stability, and ultimately the quality of life for local citizens.

Recognizing the importance of land use planning, the State of Maryland delegated basic planning and land use regulatory powers to its municipalities and non-charter counties in Article 66B of the Code of Maryland, and granted planning and zoning powers to its charter counties including Anne Arundel County in Article 25A. Several but not all of the provisions in Article 66B apply to charter counties; nevertheless, Anne Arundel County has prepared its comprehensive plan in consistency with the provisions of that Article and with the State Planning Act of 1992 that guides comprehensive planning in Maryland.

Among the provisions contained in Article 66B, the Code states that a comprehensive plan shall contain a "Land Use Plan element, which: 1) shall propose the most appropriate and desirable patterns for the general location, character, extent, and interrelationship of the uses of public and private land, on a schedule that extends as far into the future as is reasonable, and 2) may include public and private, residential, commercial, industrial, agricultural, and recreational land uses."

The *General Development Plan* addresses these requirements with the inclusion of a Land Use Plan as well as related policies and recommendations to guide growth and development. The following sections describe the Land Use Plan and how it is used and also present some proposed changes to the 2004 Land Use Plan. Additionally, a 3-tiered hierarchy of development policy areas is established with policies to guide future land use and development in each.

Purpose and Description of the Land Use Plan

The Land Use Plan is used to guide development patterns in the County in accordance with the policies established in the *General Development Plan*. The Land Use Plan is a map that uses a range of land use categories (e.g. commercial, low density residential, etc.) to describe the different types of land uses and to identify, on a broad scale, where those uses are most appropriate.

Table 7-1 lists the land use categories that are used on the County's Land Use Plan. It describes the types of uses typically found in each of the Land Use Plan categories and also lists the zoning districts that are generally applied in each land use category.

Table 7–1 Description of Land Use Plan Categories

Land Use Plan Categories	Typical Uses	Corresponding Zoning Categories
Rural	Agricultural uses and single family detached homes.	RA, RLD
Residential Low Density	Single family detached homes.	R1, R2
Residential Low-Medium Density	Single family detached homes. (Townhouse and duplex units may be allowed as Special Exception or Conditional uses.)	R2, R5
Residential Medium Density	Single family detached, duplex, townhouse, and multifamily dwellings.	R5, R10
Residential High Density	Generally multifamily dwellings.	R15, R22
Commercial	Community retail, commercial office, general retail, and highway commercial uses.	C1, C2, C3, C4
Small Business	Community commercial uses, home occupations, and single family detached homes.	SB
Industrial	Industrial park, light industrial, and heavy industrial uses.	W1, W2, W3
Maritime	Community marinas, yacht clubs, commercial marinas.	MA1, MA2, MA3, MB, MC
Mixed Use Categories	A mix of residential, commercial, employment, and public uses.	MXD-R, MXD-C, MXD-E, MXD-T
Town Center	A mix of general commercial and multifamily residential uses. Also includes Odenton Growth Management Area.	TC, Odenton Growth Management Area districts
Natural Features	Passive use parks, conservation lands, floodplains and other environmental preservation areas.	OS (Open Space) typically, but any zoning may apply.
Government / Institutional	Land owned and used by Federal, State, or local governments, such as public schools, active use parks, and BWI Airport. May also include private institutional uses.	R1 typically, but any zoning may apply.
Transportation/Utility	Road and public utility rights-of-way.	Any zoning may apply.

Relationship of the Land Use Plan and Comprehensive Zoning

The GDP Land Use Plan does not attempt to define the 'allowable' land use on every specific land parcel in the County. There are two primary reasons for this. First, from a logistics standpoint, it is not feasible to conduct a land use suitability analysis for every property in the County, and therefore the Land Use Plan has always been generalized to some degree. Secondly, there are many cases where more than one specific land use might be appropriate and acceptable on a given parcel, and these should be determined on a case by case basis given the specific circumstances in the area.

Therefore, while the Land Use Plan is used as a guide when the County prepares comprehensive zoning legislation, the County does not mandate that all comprehensive zoning changes must be determined by the Land Use Plan map or must specifically 'match' the Land Use Plan category. Based on past experience, the majority of comprehensive zoning changes have matched the Land Use Plan. However, the comprehensive zoning process is not done concurrently with the GDP update, but is conducted after adoption of the GDP as needed to implement the Plan recommendations. In addition, the County typically allows individual property owners to apply for a zoning change during the comprehensive zoning process. For these reasons, there have been cases where a requested change in zoning was found to be consistent with the goals and objectives of the comprehensive plan, and was therefore supported, even though it did not match the Land Use Plan on a parcel-specific basis. To address this issue, the County may periodically amend the GDP Land Use Plan to reflect any such changes and to maintain consistency between the Land Use Plan and adopted zoning as needed.

A comprehensive plan such as the GDP is by nature a broad policy document that covers a wide range of subjects and their associated goals, objectives and policies. With this in mind, the following criteria are established with regard to comprehensive zoning and will be used in evaluating individual zoning applications submitted during a comprehensive zoning process. In addition, a comprehensive zoning change may be proposed where it will correct a mistake made on the County's official zoning maps.

Policy: Comprehensive zoning changes must demonstrate the following criteria:

1) The change in zoning will further one or more of the established goals and policies in the adopted GDP or Small Area Plan;

2) The change in zoning will not be contrary to an established goal or policy in the adopted GDP or Small Area Plan;

3) The change in zoning will allow a land use that is compatible with the surrounding land uses, so as to promote the health, safety and welfare of present and future residents.

Of course, comprehensive zoning is not the only mechanism used to implement the *General Development Plan*. As discussed in some earlier chapters, the County uses a range of tools in conjunction with the GDP policies and Land Use Plan to guide development. These include sector plans, functional plans, revitalization programs, agricultural preservation programs, overlay zones, economic development strategic plans, and development regulations.

The 2009 Land Use Plan

As discussed in Chapter 2, sixteen individual Land Use Plans were adopted as part of the County's Small Area Plan program between 2000 and 2004. These plans were then

combined to form the 2004 Land Use Plan which represents collectively the 16 individual land use plans. The 2004 Plan was then used as the starting point for this GDP update. Therefore, the new Land Use Plan adopted in this GDP will supersede all previously adopted Land Use Plans.

The overall land use pattern did not change significantly between the 1997 and 2004 Land Use Plans. Instead, changes were mostly site-specific and focused on targeted areas such as mixed use sites. Other changes were made to better reflect development types and densities that are currently in place and are encouraged to remain over the long term.

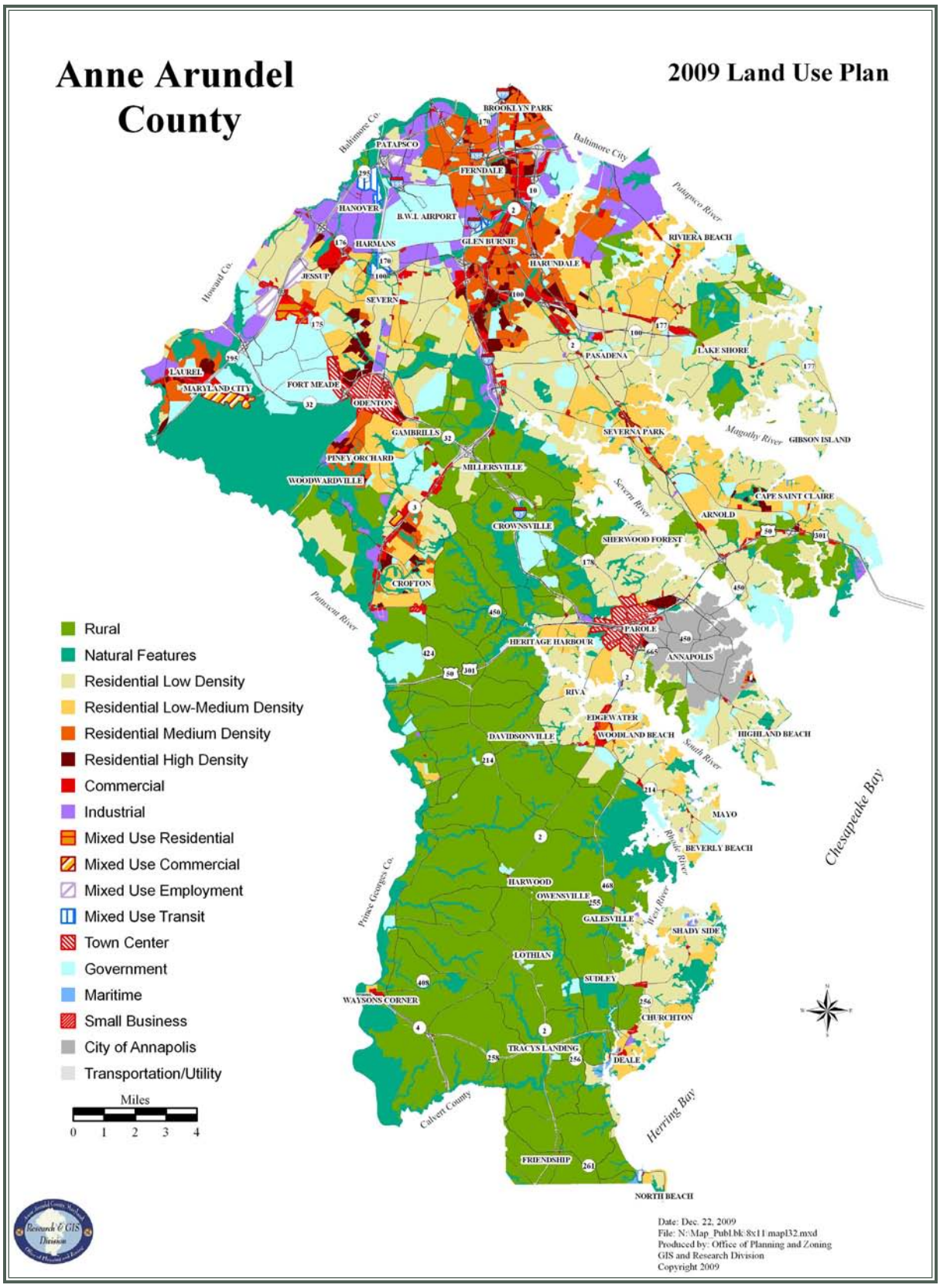
The 2009 Land Use Plan is shown in Figure 7-1. Once again, the overall pattern of land use has not changed significantly. This will likely be the case for future GDP updates as well, since development patterns are well established in most parts of the County. Higher density residential uses and most of the County's industrial and commercial land base are still concentrated in the northern parts of the County and in Odenton, Severn, Maryland City, Crofton, and Parole. The rural land base still covers much of the Crownsville area and virtually all of South County with the exception of the Deale, Churchton, Shady Side, and Galesville communities. Low to medium density residential uses are spread throughout but are most predominant on the peninsulas (Lake Shore, Broadneck, Annapolis Neck, Edgewater and Mayo) and in Severna Park, Pasadena, Severn and Jessup.

The 2009 Land Use Plan incorporates some changes from the previous 2004 Plan. These can be grouped into two general categories. The first category is referred to as "consistency changes". Consistency changes were made in areas where the Land Use Plan did not accurately reflect development types and densities that are existing and are planned to remain over the long term. Consistency changes were also made in some areas where the zoning currently in place and planned to remain over the long term was not consistent with the land use category.

An additional consistency change was made in relation to public park properties. Additional work has been completed since 2004 in updating the County's database of public park properties, which had been previously indicated on the Land Use Plan in a range of categories. These properties are now designated in one of two categories. Public park properties that are primarily active-use parks, including recreation centers and ballfields, are designated as Government / Institutional properties. Public park properties that are primarily passive-use parks, or that were acquired for preservation purposes, are designated as Natural Features properties. This will facilitate use of the Land Use Plan in future planning efforts.

The second category of Land Use Plan changes are site-specific and represent sites or areas where a new type of development is being encouraged. These are described in the following section.

Figure 7–1 2009 Land Use Plan



Key Land Use Plan Changes for 2009

There are a number of site-specific changes proposed in the 2009 Land Use Plan. These are listed by Map Area in the Appendix and the locations are referenced on Figure 7-2. In general, the changes are proposed to meet one or more of the following objectives:

- Provide additional live/work opportunities by planning appropriate sites for mixed use development;
- Increase opportunities for new business park and employment uses to meet long term demand; and
- Address additional needs for community services.

Most of the changes are located in the County's growth corridor along the Baltimore Washington Parkway between Fort Meade and the BWI Airport. They are described in further detail below:

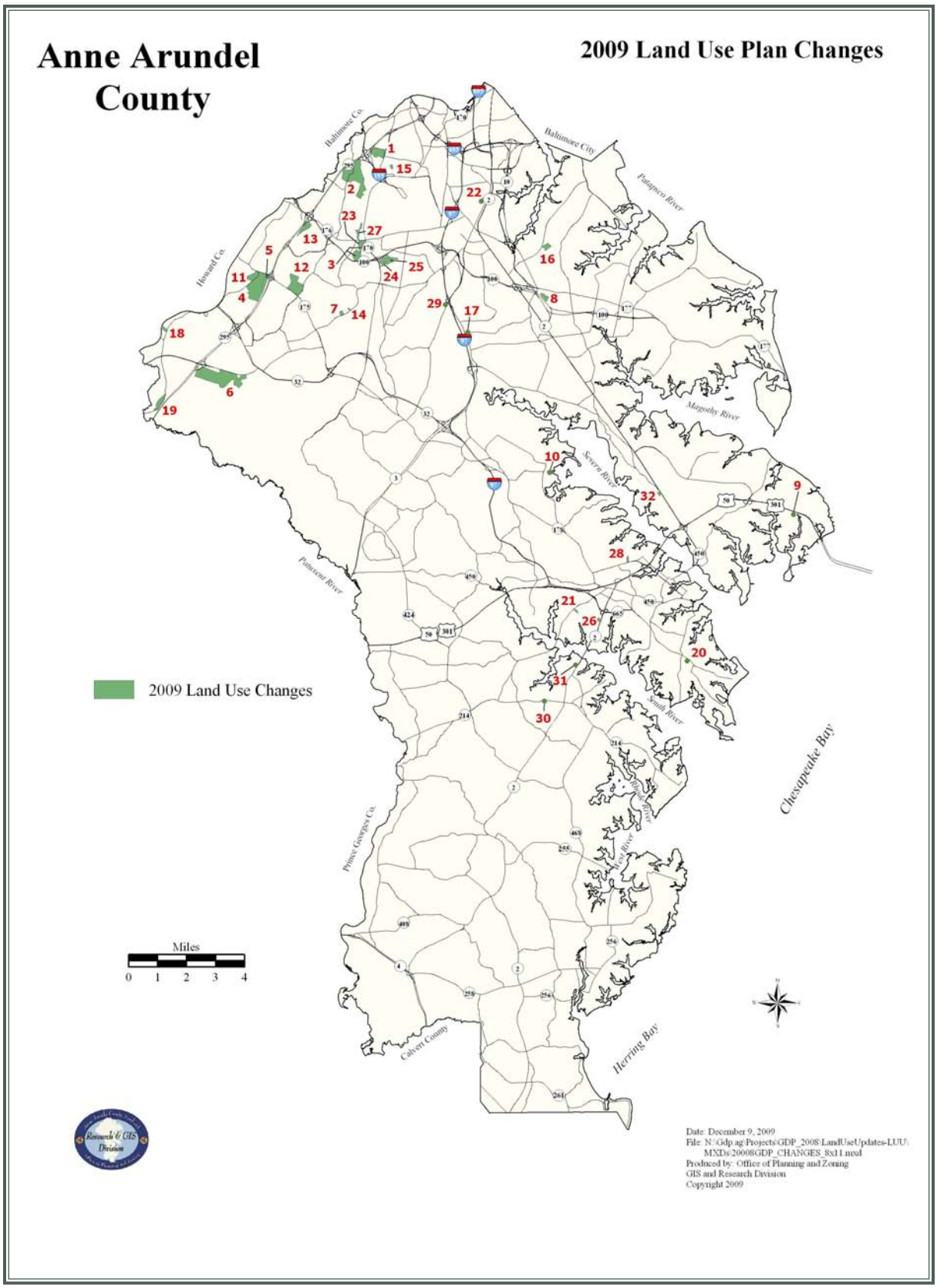
- Airport Square Business Park, Linthicum (Map Area 1): This existing business park along West Nursery Road is planned for Employment Mixed Use to allow redevelopment to create more live/work opportunities along this employment corridor. Conceptual development plans will be required prior to rezoning of this site to MXD-E. (See discussion of infrastructure constraints under Map Area 2).

- Ridge Road Area, Hanover (Map Area 2): This area located near the BWI Amtrak Station and previously planned for industrial uses, is designated for Transit Mixed Use to allow office, retail, and high density residential uses near major employers around the airport and near Amtrak and MARC transit opportunities. Because of its proximity to BWI Airport, the area is uniquely positioned to promote multi-modal transit opportunities. Developers are interested in pursuing an "aerotropolis" or "airport city" concept that would incorporate airport-oriented uses, employment, hospitality, entertainment and residential uses in a transit-oriented development. The development would be planned within the area bordered by MD 295, Hanover Road, and Aviation Boulevard. The specific boundaries of the area, as shown on the Land Use Plan Map, are subject to change by amendment as the property owners work to formalize their concept.

  Although the concept is attractive in that it promotes the goal of transit-oriented development, there are potential infrastructure constraints that must be addressed in the early conceptual planning stages. The site is located in the Baltimore City Sewer Service Area (as are Map Areas 1 and 3), which is subject to an inter-jurisdictional agreement between the County and the City of Baltimore and which allows the County a specified amount of treatment capacity at the Patapsco sewage treatment facility in Baltimore. Much of the County's allotted treatment capacity has been allocated to date, and the feasibility of serving a planned development of the type proposed has not been demonstrated.

  Therefore, the County will require that a concept plan be prepared with sufficient detail to allow adequate assessment of infrastructure impacts, including

Figure 7–2 2009 Land Use Plan Changes



wastewater treatment, roads, and public safety services, prior to rezoning any properties within this area to MXD-T during either a comprehensive zoning or an administrative zoning process. Additionally, the County will require preservation of the Stoney Run and Piney Run tributaries, stream buffers, and any associated sensitive areas. Both tributaries are partially unprotected segments of the County's proposed Greenways network, and such protection is encouraged in the Greenways Master Plan.

- MARC Rail Line at MD 100 (Map Area 3): This industrial site is under study by the Maryland Transit Authority for future location of a MARC station along the Penn Line. It is proposed for Transit Mixed Use to promote future densities that would support a transit station and offer transit-oriented development opportunities. Conceptual development plans will be required prior to rezoning of properties in this site to MXD-T. (See discussion of infrastructure constraints under Map Area 2).
- Clarks 100 site, Jessup (Map Area 4 & 5): This site is located at MD 175 and the BW Parkway and was previously planned for Residential Mixed Use. The Land Use Plan proposes Employment Mixed Use which will allow for a larger percentage of office employment use on the site in keeping with current plans for expansion of National Business Park.
- Arundel Gateway site, Maryland City (Map Area 6): This site, located at MD 198 and the BW Parkway and previously planned for industrial use, is proposed for Commercial Mixed Use to promote live-work opportunities near two major employment centers – Fort Meade and National Business Park. Rather than primarily industrial uses, development plans would include office, retail and residential uses. Preservation of all sensitive areas on the site will be required and retention of open space will be encouraged to the maximum extent possible in order to minimize impacts to the adjacent Patuxent Research Refuge.
- Van Bokkelen Elementary School site (Map Area 7): A portion of this Board of Education property is planned for the future location of a community and health center. Arundel Community Development Services Inc. has been working with a non-profit organization to facilitate development of the center. The Land Use Plan indicates a Low Residential category which will support a future rezoning from OS to a Residential zoning district that will permit the community center.

These changes to the Land Use Plan are also listed with parcel information in the Appendix. Collectively, these changes represent a relatively small amount of acreage but will nevertheless provide additional live/work and employment opportunities as well as meet additional objectives stated.

Development Policy Areas

In order to better focus growth in areas which utilize existing and planned infrastructure, and preserve existing neighborhoods and the environment, this Plan defines three

Development Policy Areas. These policy areas are geographic areas designated in the Land Use Plan as appropriate for a particular range of future land uses and public facilities. The location and extent of these areas are based primarily upon the Land Use Plan, natural resources, the location of public wastewater and water facilities, Priority Funding Areas, and revitalization goals. The Development Policy Areas will provide a logical and predictable framework for implementing the goals, policies, and actions in the GDP. In addition, they provide a mechanism for making cost-effective investments in public facilities and services. The Development Policy Areas defined in this Plan are Targeted Growth Areas, Managed Growth Areas, and Rural Areas.

The 3-tiered system of Development Policy Areas will provide a framework for implementing the goals and policies in the GDP.

Targeted Growth Areas

These include the existing Odenton Town Center, Parole Growth Management Area, and Glen Burnie Town Center Enhancement Area; the designated Commercial Revitalization Districts; and the existing and planned Mixed Use Districts. In these areas, development and redevelopment will be the highest priority for economic growth in the County. These areas are characterized by a mix of uses or a concentration of a single use, typically to serve a regional population. In general, residential and nonresidential uses are more intense here than in other areas of the County. Public infrastructure exists but may need additional capacity for future growth. The highest priority is given in the Capital Improvement Program for public improvements in this policy area.

Managed Growth Areas

These areas are characterized by low to high density residential uses, local commercial and office uses, and industrial land uses. The remainder of the County's Priority Funding Area, outside of the Targeted Growth Areas, falls within the Managed Growth Areas. There is a diverse mix of older established and newly developed neighborhoods. Some of the areas such as Brooklyn Park and Glen Burnie have little new growth potential but have greater redevelopment opportunities. In most areas, public infrastructure exists but there may be a need for additional capacity to serve new growth. The Managed Growth Area is within the boundaries of the County's public sewer service areas, although some areas may remain developed on private septic and well systems. In addition, the Managed Growth Area includes some areas within the Rural Service Area (not currently planned for public sewer) that have been identified for potential public sewer extension in the future in order to reduce pollution from septic systems.

Rural Areas

This area is characterized by rural residential land use and limited local commercial uses. Residential uses are primarily single family homes, and clustering is encouraged in residential subdivisions in order to preserve the rural character by retaining large expanses of open space. Preservation of agricultural uses and rural economy uses is also encouraged. It is also located within the Rural Sewer Service Area and is served by private septic and well systems.

Figure 7-3 defines the three Development Policy Areas. General Development Plan policies that will serve to guide new growth, redevelopment, infrastructure, and funding in each of these Policy Areas are shown in Table 7-2 below.

Figure 7–3 Development Policy Areas

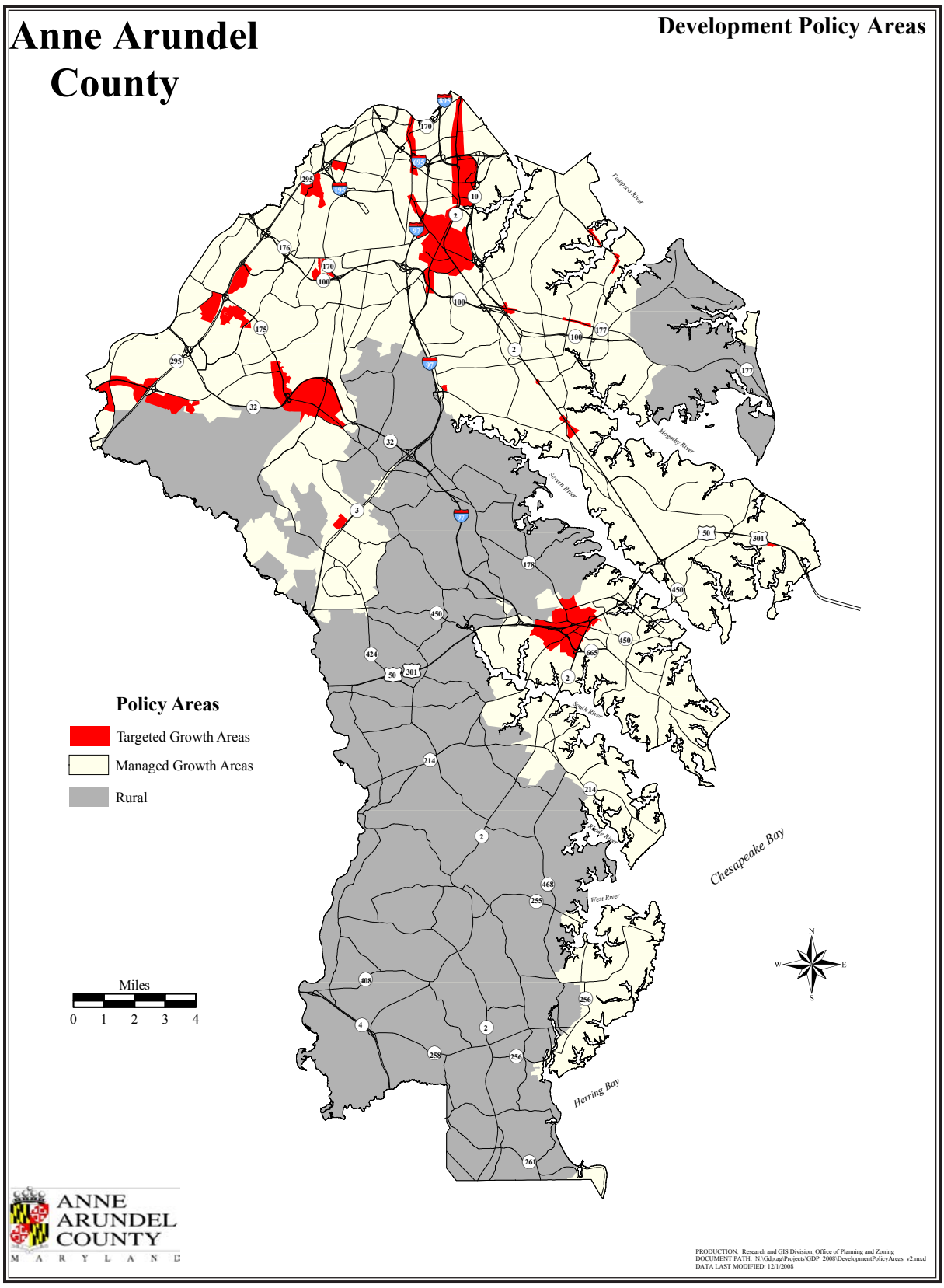


Table 7–2 General Development Plan Policies

Policies	Targeted Growth Areas	Managed Growth Areas	Rural Areas
BALANCED GROWTH AND SUSTAINABILITY			
Encourage mixed use development with jobs, housing, shopping, transportation and other services within walking distance.	X		
Encourage infill development and redevelopment opportunities inside the Priority Funding Area.	X	X	
Promote redevelopment of brownfields sites.	X	X	X
Any future increases in development capacity should be consistent with adopted land use policies.	X	X	X
Promote development / redevelopment through the use of techniques such as financial tax incentives, revitalization, redevelopment assistance from AAEDC, DBED and DHCD, urban design studies, expedited development process, and private public partnerships.	X		
Actively promote retention and expansion of existing businesses through financial assistance, employee training and other incentives.	X	X	X
Focus economic development and business attraction efforts in Town Centers, Mixed Use districts, Revitalization districts, and areas with existing or planned transit access.	X	X	
Maintain an adequate supply of land for industrial and commercial office uses to meet current employment projections including new BRAC-related job growth and to maintain a balanced tax base.	X	X	
Maintain a suitable range of housing densities and types to meet local needs.	X	X	
Increase the supply of workforce housing.	X	X	
Promote adaptive reuse of existing structures for workforce housing.	X	X	
Acquire approximately 3,150 additional acres of land for open space and natural resource land protection by year 2020.		X	X
COMMUNITY PRESERVATION & ENHANCEMENT			
Promote redevelopment in designated Commercial Revitalization districts and other older commercial areas.	X	X	
Conserve and enhance the unique character of distinctive communities through neighborhood conservation initiatives.	X	X	X
Maintain the Rural Land Use designation and Rural Agricultural zoning as the primary mechanism for preserving the rural character of South County and other rural areas.			X
Strengthen the agricultural economic development and marketing efforts to promote rural economy land uses.			X

Table 7–2 General Development Plan Policies

Policies	Targeted Growth Areas	Managed Growth Areas	Rural Areas
Provide incentives and strengthen regulations to encourage and promote historic preservation.	X	X	X
ENVIRONMENTAL STEWARDSHIP AND WATER RESOURCES			
Comply with nutrient load limits from water reclamation facilities in all public sewer service areas.	X	X	
Reduce nutrient loads from onsite septic systems countywide, and target reductions in the Severn River, South River, Magothy River, and Bodkin Creek watersheds.		X	X
Communities served by onsite septic systems in septic problem areas should be placed in the Planned Sewer Service category where it is feasible to extend public sewer or to install community treatment systems.		X	X
Extension of public sewer to address problem septic areas will not be considered justification in itself for changing the Land Use Plan or the zoning in those areas.		X	X
Achieve the greatest reduction in nonpoint source pollution loads attainable.	X	X	X
Provide stormwater management where it currently does not exist and encourage innovative methods for providing it.	X	X	
Protect stream buffers as a means of reducing stormwater runoff impacts and improving water quality.	X	X	X
Minimize disturbance to floodplains and steep slopes.	X	X	X
Continue established policy of no net loss of wetlands and strive for an overall gain of wetland areas.	X	X	X
Minimize the allowance of modifications to the Subdivision and Development Regulations where sensitive areas are impacted.	X	X	X
Establish an interconnected network of protected woodlands and open space in accordance with the Greenways Master Plan.	X	X	X
Ensure maximum protection of non-tidal wetlands, designated wildlife refuges and other natural resource areas in areas designated as mixed use, in town centers or in areas designated for growth.	X	X	
Discourage incompatible land uses that would have localized affects on air pollution, and prevent cumulative impacts of concentrating multiple sources in an area.	X	X	X
Limit future residential uses and other noise-sensitive land uses in areas exposed to high levels of noise, and use innovative techniques to reduce noise impacts to acceptable levels.	X	X	X
Protect natural resources from impacts of sand and gravel mining.		X	X

Table 7–2 General Development Plan Policies

Policies	Targeted Growth Areas	Managed Growth Areas	Rural Areas
Conserve mineral resources for future extraction.		X	X
Promote sustainable site and building design that will result in more environmentally-friendly buildings, conserve energy and water, improve air quality and reduce solid waste.	X	X	X
QUALITY PUBLIC SERVICES			
Achieve and maintain the most efficient, effective, and equitable use of public facilities and services including education, public safety, health, and senior services.	X	X	X
Improve and expand recreational opportunities so that all communities have sufficient access to facilities and programs.	X	X	X
Supplement public health services by promoting development of private health care facilities.	X	X	
Locate senior housing options near health, EMS, transportation, and retail services.	X	X	
Provide for the needs of persons with disabilities in housing, transportation, and public services planning.	X	X	X
Account for potential effects of future sea level rise in making land use and planning decisions.	X	X	X
Encourage water conservation and protection of the County's groundwater resources.	X	X	X
Provide adequate capacity at County Water Reclamation Facilities to serve planned growth.	X	X	
Optimize recycling programs, systems and outreach with a priority of recycling over land disposal.	X	X	X
Recycle at least 50 % of the residential solid waste collected in the County.	X	X	X
Former landfill sites and adjacent properties should not be redeveloped with incompatible land uses.		X	X
Prohibit new solid waste landfills in locations near residential areas that rely on water supply wells and near environmentally sensitive areas.		X	X
LAND USE PLAN			
Comprehensive zoning changes must further, and not be contrary to, the established goals and policies in the GDP and Small Area Plans.	X	X	X
PRIORITY PRESERVATION AREA			
Preserve 80% of undeveloped land within the Priority Preservation Area through protective easements in order to meet the State's PPA protection goal.			X

Table 7–2 General Development Plan Policies

Policies	Targeted Growth Areas	Managed Growth Areas	Rural Areas
TRANSPORTATION SYSTEMS			
Extend transit service along major transportation corridors.	X	X	
Promote carpooling and vanpooling.	X	X	X
Promote transportation demand management strategies.	X	X	X
Provide an expanded bikeway and sidewalk network.	X	X	
Provide a well integrated system of multi-modal, pedestrian friendly transportation facilities.	X	X	
Provide a transportation level of service of C or better on an average daily basis, or D or better during peak hours.		X	X
Establish LOS standards based on planned land uses and densities to allow lower standards in town centers and more urbanized areas where transit and other options are available.	X		

Chapter 8: Priority Presevation Areas

Overview

Anne Arundel County has been an agricultural community for over 350 years, beginning with its role as a major tobacco-producing region in the 17th and 18th centuries. Today agricultural production is more diversified but is still an important component of the local economy. While the northern part of the County has become much more urbanized over the past century, South County has remained a strong agricultural producing region.

Traditionally, Anne Arundel County has had smaller farms than some other Maryland counties, particularly on the Eastern Shore, due to topography and development pressures generated by its central location between Baltimore and Washington. County farms range from crops and livestock to timber production and horse breeding. Many farms remain family operations. With the transition from tobacco as a major cash crop, County farms now primarily grow corn, soybeans, wheat, hay, and vegetables. Many farmers have found that boarding and breeding horses is more profitable than raising crops.

The most recent USDA Census of Agriculture, completed in 2007, indicates over 29,200 acres of land in farm use in the County, representing 11% of the County's total land area. There are an estimated 377 farms in the County with an average farm size of 78 acres. This represents a decline from approximately 35,000 acres of farm land and 432 farms according to the 2002 Census. Over half of the land in farms is used for cropland with the remainder used for woodland, pastureland, or for house lots. The leading crops in terms of number of acres farmed are soybeans, corn and hay, which collectively account for three quarters of the cropland acreage.

Anne Arundel County has over 29,000 acres of land in farm use, representing 11% of the County's total land area.

The 2007 USDA Census estimated the total market value of agricultural production in the County to be $19 million, of which crops made up 85% and livestock 15%. In terms of market value of production, the leading product was nursery, greenhouse products, flowers, and sod that accounted for $10.9 million of production value, followed by livestock, poultry and their products ($2.9 million), grains ($2.8 million), and vegetables and hay.

The County's horse industry is also an important part of its agriculture base. A Maryland Equine Census conducted in 2002 reported 4,590 horses and ponies in the County with a value of $27 million. There were over 2,300 County residents directly involved in the equine industry sector, not including hired labor. The horse industry in the County includes the racing breeds of thoroughbreds and standard-breds, as well as other breeds involved in recreational activities, such as Arabians, quarter horses, sport horses and smaller pony breeds.

The farms and open spaces of southern Anne Arundel County are important to the County and the region. Agriculture serves a dual role of providing a direct economic benefit as well as preserving the quality of life that is reflected in a rural environment.

The Planning Framework for Agricultural Preservation

The County has three primary planning documents that establish goals and strategies relating to agricultural land preservation. These include the *General Development Plan*, the *South County Small Area Plan*, and the *2006 Land Preservation, Parks and Recreation Plan*.

The 1997 GDP included several policies related to the goal of preserving agricultural, forested, and rural areas of the County. These policies and strategies related primarily to promoting agriculture as a viable sector of the local economy; encouraging the use of Best Management Practices to reduce nutrient and sediment runoff and promote healthy streams; discouraging the loss of prime agricultural land to development; and working cooperatively with State agencies and property owners to increase the amount of land protected through easement acquisitions.

The South County Small Area Plan, adopted in 2001, also included several recommendations for maintaining the rural economy. These included incorporating a rural economy function within the County's overall economic development program. Progress on many of these recommendations is ongoing and is discussed in the following section on implementation.

Finally, the 2006 Land Preservation, Parks and Recreation Plan also addresses the subject of agricultural preservation. This State-mandated plan focuses on three major components which collectively make up the County's overall preservation program: 1) recreation, parks and open space; 2) agricultural land preservation; and 3) natural resource conservation. The Plan evaluated the County's current implementation program for agricultural preservation, which is described below, and proposed four major program development strategies to help further the County's progress in reaching its preservation goals:

- Adopt revised program regulations for the Agricultural and Woodland Preservation Program;
- Increase the rate of agricultural easement acquisitions and land preservation;
- Strengthen agricultural economic development and marketing within the Anne Arundel Economic Development Corporation (AAEDC); and
- Nurture and support growing enterprises such as horse farming.

Since the adoption of these plans, several steps have been taken to address these goals and strategies as discussed below. Based on these, the County has made significant strides toward meeting its preservation goals. Although to date the County has not reached the overall program goal established in 1993 of preserving 20,000 acres of agricultural land through the purchase of easements, over 11,000 acres have been preserved, and nearly 8,500 acres of that total have been preserved since 1992.

Implementation Programs for Agricultural Preservation

Anne Arundel County's implementation program for agricultural and woodland preservation consists of three easement acquisition programs, other funding mechanisms, land use controls, marketing programs, and public outreach. Program policies focus on maintaining agriculture as a viable and sustainable sector of the economy and on preserving agriculture as a key element of the rural character of South County. The programs are implemented through the cooperative efforts of several County agencies, State agencies, advisory committees, and advisory boards.

Easement Acquisition Programs

The three easement acquisition programs operating in the County are the Maryland Agricultural Land Preservation Foundation (MALPF) program, the County's Agricultural and Woodland Preservation Program, and the Rural Legacy Program. The amount of agricultural land protected with easements under each of these programs, as of February 2008, is shown in Table 8-1.

Table 8–1 Preserved Agricultural Lands

Agricultural Lands	Acres
Easements (permanently protected)	
MALPF	4,411
County Agriculture & Woodland Program	5,805
Rural Legacy	855
Total Easements	11,071
Districts (not permanent)	
MALPF Districts	3,208
County Districts	2,637
Total Districts	5,845
Total Easements and Districts	16,916

Maryland Agricultural Land Preservation Foundation (MALPF)

The Maryland Agricultural Land Preservation Foundation program is a purchase of development rights program. After eligibility is established, the MALPF can purchase the development rights from the owner based on the fair market value of the property. The Foundation offers grants for payment in lump sum or in installments. The property is then preserved for agricultural use in perpetuity and placed under an easement. Anne Arundel County has participated in the MALPF Program since 1980. As of February 2008, the County has a total of 4,411 acres that are permanently preserved through MALPF easements.

Anne Arundel County Agricultural and Woodland Preservation Program

The County's Agricultural and Woodland Preservation Program was created in 1990 to supplement the MALPF program and to offer an alternative for agricultural preservation that recognized the County's small farms, since at that time participation in the MALPF program required a minimum size of 100 acres. The County's program is also a voluntary purchase of development rights program by which the County purchases an easement to preserve the property for agricultural use. Properties of 50 contiguous acres or more in agricultural use or 25 contiguous acres or more in woodlands are eligible to participate if the property has additional development potential. In an effort to increase the amount of land protected through easement acquisitions, beginning in 2000 the County added an Installment Purchase Agreement (IPA) option to its program. Under this option, the County purchases an easement based on the fair market value and pays in installments, plus tax-free interest, over 30 years. This allows the County to make more easement purchases at a faster pace as opposed to paying for easements on a cash basis. As of February 2008, the County has devoted approximately $26 million to this program, and a total of 5,805 acres have been permanently preserved through the program.

In 2003, an executive committee was appointed to review and evaluate the County's Agricultural and Woodland Preservation Program. Several recommendations were made to improve the program, and some of those were addressed through revisions to the County's zoning code in 2005. The County is currently working to draft legislation to further revise its agricultural program regulations to incorporate some additional recommendations. Based upon further analysis, the County may consider lowering the minimum acreage requirements and/or restructuring the monetary aspects of the program in order to increase participation.

Rural Legacy Program

This program, administered by the State Department of Natural Resources, requires participating counties to delineate a specific geographic area in need of focused land conservation efforts. Anne Arundel County's designated Rural Legacy Area (RLA) is approximately 32,400 acres in size and is located in South County. Within that area, the County can purchase easements from landowners based on a scoring and ranking system that rates property according to size, development potential, soil productivity and other factors. Grants are awarded for lump sum payments. As shown in Table 8-2 approximately 12,507 acres (39%) of the RLA have been protected as of February 2008. Of these approximately 855 acres were preserved through the Rural Legacy program.

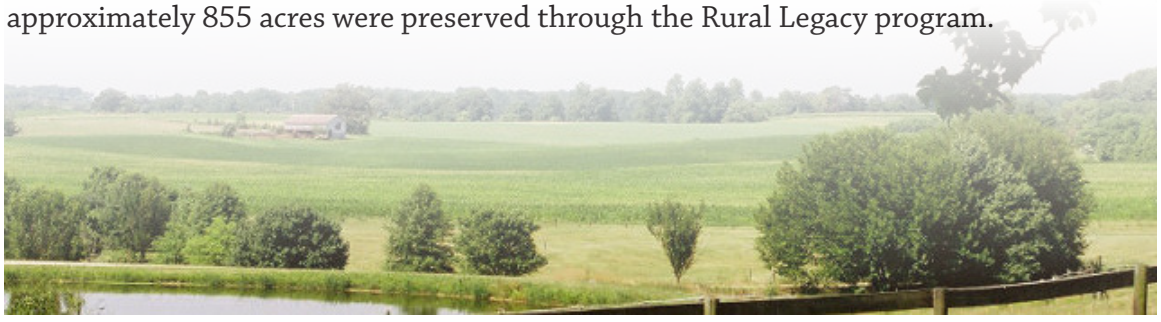


Table 8–2 Rural Legacy Area Summary

Type of Land	Acres	Percent
Protected Land		
Rural Legacy	855	
State parks & open space	217	
Federal parks & open space	1,844	
County parks and open space	2,199	
MALPF	3,590	
County Agricultural & Woodland Program	3,596	
Maryland Environmental Trust	21	
Private Land Trust	185	
Total Protected Land	12,507	39%
Developed Land	6,199	19%
Unprotected Land	13,715	42%
Total Rural Legacy Area	32,421	100%

Figure 8-1 illustrates the location of properties that have been permanently protected with conservation easements through one of the three agricultural preservation programs. As shown, most of the properties are located in rural South County although a few are located on the Broadneck peninsula or elsewhere in the County.

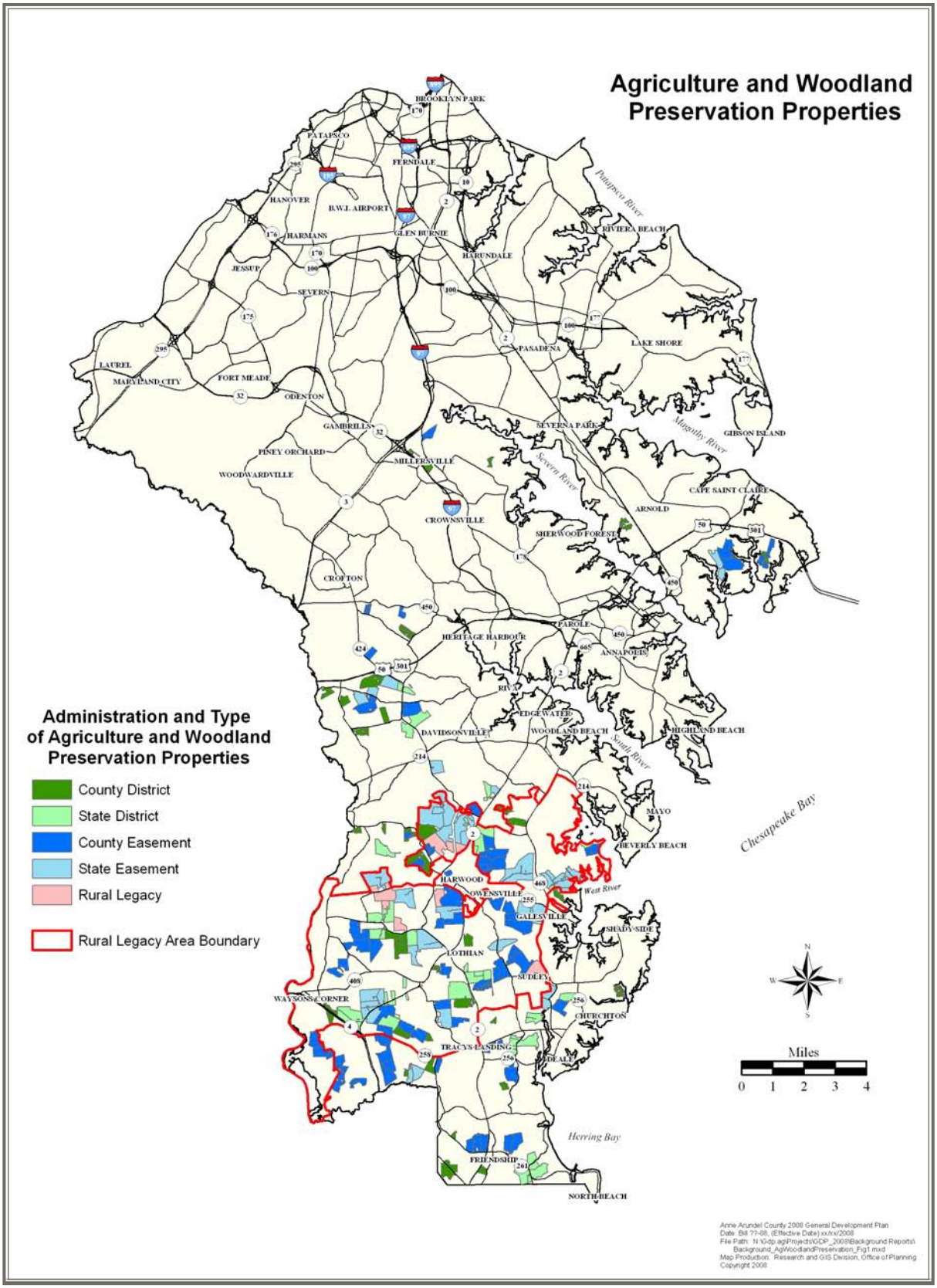
Existing Funding Mechanisms

The primary mechanism for permanently protecting agricultural land in Anne Arundel County is through the purchase of conservation easements on private land. Both local funds and matching State funds are used for easement acquisition. Since 1980, approximately $40.2 million has been spent on agricultural land preservation in the County, of which 70% came from County funding sources, 29% from State funds, and 1% from federal funds. A summary of agricultural preservation expenditures by year can be found in the County's 2006 Land Preservation, Parks and Recreation Plan.

County funding for agricultural preservation comes from a variety of sources, including County General Fund appropriations, installment purchase agreement (IPA) bonds, and agricultural transfer tax monies which go to both the State and the County. To a lesser extent, additional funds come from grants, tobacco buyout funds, and federal sources.

The County has also offered a tax credit program since 1990 as an additional incentive for land preservation. This is a ten-year real property tax credit to participants in either the MALPF or the County agricultural preservation programs.

Figure 8–1 Agriculture and Woodland Preservation Properties



Land Use Controls and Policies

The County's General Development Plan, Zoning Ordinance, and Subdivision Regulations are the principal planning and regulatory tools used to establish land use policies and to guide and manage growth, development, and land preservation. The 2009 Land Use Plan designates approximately 89,000 acres of land, including most of South County, for "Rural" land use. In general, a Rural designation indicates that land use in the area should continue as rural or agricultural, that public utilities are not planned for the area, that agriculture and forestry should be primary uses in the area, that new residential uses are encouraged to develop in villages or clusters to preserve as much open space as possible, and that commercial uses be limited to neighborhood and community level services.

Areas with a Rural land use designation are generally assigned to the Rural Agricultural (RA) zoning district, particularly in South County. The RA zoning district comprises approximately 30% of the land area in the County and includes most of the County's prime agricultural land. The RA district allows residential subdivisions at a density of one dwelling unit per 20 acres, with one additional dwelling unit permitted for residue acreage over 10 acres, and for parcels over 50 acres, one additional dwelling unit for every 50 acres. Although properties less than 50 acres in size cannot currently qualify for the MALPF program or the County's Agricultural and Woodland Preservation Program (because there would be limited if any development rights to sell), quite a few of these properties nonetheless are used for vegetable growing, flowers, grapes, horses and other agricultural uses.

Since the adoption of the 1997 GDP and the South County Small Area Plan, the County has adopted several code changes that will help to reduce the loss of agricultural land to development. For example, a Right to Farm bill was adopted in 2004 with the intention of preventing nuisance lawsuits that can often arise from residential growth in agricultural areas. This legislation will help to protect the economic viability of farming in the County.

Additional changes were made to the code in 2005 that will have an impact on development densities in rural areas. Prior to 2005, maximum development densities in the RA zone were one dwelling unit per 20 acres in general, but additional lots could be subdivided for the purpose of family conveyances. This provision was in some cases allowing overall development densities much higher than what was desirable in the RA district. As part of a comprehensive change to the County's zoning ordinance in 2005, the family conveyance provision was eliminated from the regulations. The County believes this will help to preserve larger contiguous areas of farmland and reduce fragmentation of agricultural areas.

Other changes to the County Code have been made to provide increased incentives for agricultural preservation. The County's Subdivision Regulations now allow that agricultural preservation subdivisions, i.e. a subdivision for which an agricultural preservation

easement has been acquired, may be exempted from Adequate Public Facilities requirements for schools and roads. This exemption may serve to be a major incentive for landowners to place properties under agricultural easements.

In consistency with State regulations, the County's Agricultural and Woodland Preservation Program now requires that all properties participating in the program have Soil and Water Conservation Plans, Forest Management Plans, and Nutrient Management Plans, when applicable, in effect. These plans rely on the use of Best Management Practices (BMPs) to control agricultural runoff and reduce nutrient loads to local waters. This also contributes to the County's broader environmental goals of watershed protection and forest conservation.

Marketing and Public Outreach

Information on the County's various agricultural preservation programs is available on the Anne Arundel County web site. Public informational meetings are periodically held at different locations around the County to explain the various programs and options available to the landowners. Attendees are provided brochures explaining qualifying criteria, payment options, and deadlines to apply along with application forms.

Exposure is also provided through partnership with the Anne Arundel Economic Development Corporation (AAEDC). This agency has worked with the County to develop a strategic marketing plan to promote its agricultural programs, including the creation of a full time staff position in AAEDC. In addition, the agency has developed outreach materials promoting local farmers markets. AAEDC interacts with Federal, State, and local agencies and is well represented on agricultural boards and commissions as a part of their effort to be aware of and address current issues in the agricultural community. AAEDC includes the development of agribusiness in its overall mission of serving business needs and increasing the County's economic base.

In 2002, the County established an Agricultural Development Advisory Committee to work with AAEDC, County staff, farmers, and the agricultural business community to sustain and promote agriculture. The committee, re-appointed by AAEDC in 2007, focuses on market development, funding, public information and outreach. Most recently the committee has worked to expand farmers' markets and develop programs to support the agricultural community. The County is committed to continuing its financial commitment to these programs to the extent possible.

Program Management and Interagency Coordination

A number of County agencies, committees, and boards have key roles in implementing the various components of the County's agricultural preservation program. Cooperation among the various local agencies as well as coordination with the Maryland Department of Agriculture and MALPF are important to the success of the program.

The Department of Recreation and Parks has primary responsibility for program guidelines, implementation, and strategies. The Department guides the administration of the three easement acquisition programs described previously, including the Anne Arundel County Agricultural Preservation Program, Maryland Agricultural Land Preservation Foundation Program, and Rural Legacy Program. Property descriptions and maps relating to all easement properties are maintained within the Department.

The Anne Arundel County Agricultural Preservation Program operates under a Capital Project managed by the Department of Public Works (DPW). DPW provides budget management and compliance with County procedures including but not limited to property appraisals and preliminary title review of potential easement properties.

Currently, Article 18 of the Anne Arundel County Code cites the Office of Planning and Zoning with responsibility for approvals and recommendations regarding the creation of Agricultural Districts, purchase of Agricultural Easements, and program guidelines relating to land use and zoning.

The Agricultural Preservation Advisory Board is established in accordance with the Agriculture Article, § 2-505.1 to promote preservation of agriculture within the County. This five-member board is appointed by the County Executive and is comprised of citizens and members of the agricultural community. The Board meets at least four times a year and advises the County Executive and the County Council on the establishment of agricultural districts and the purchase of easements. The Board also makes recommendations concerning budget and appropriation requests, promotes the preservation of agriculture, and prepares and reviews recommendations related to County policies and programs.

The Anne Arundel County Forestry Board directly provides expertise and knowledge as a review agency for forest management plans on potential district and easement properties. As volunteer advocates for forestry, Board members focus on preserving the County's forest resources. The Board provides education and outreach to increase public awareness of environmental concerns and good forestry practices.

Priority Preservation Areas

The Agricultural Stewardship Act of 2006 authorizes counties to include a Priority Preservation Area (PPA) element in their comprehensive plan, and the requirement is mandatory for counties such as Anne Arundel that have State-certified programs. A specific preservation goal will be established based on the PPA. By establishing a priority area that meets

specified criteria, the State and counties will be able to better target preservation funds to those areas that will provide the most benefit toward meeting a county's preservation goals. The County will still be able to purchase easements outside of the PPA using the three existing easement acquisition programs, but additional State funding, when available, will be targeted toward preservation within the PPA. The State requires that a PPA meet the following criteria:

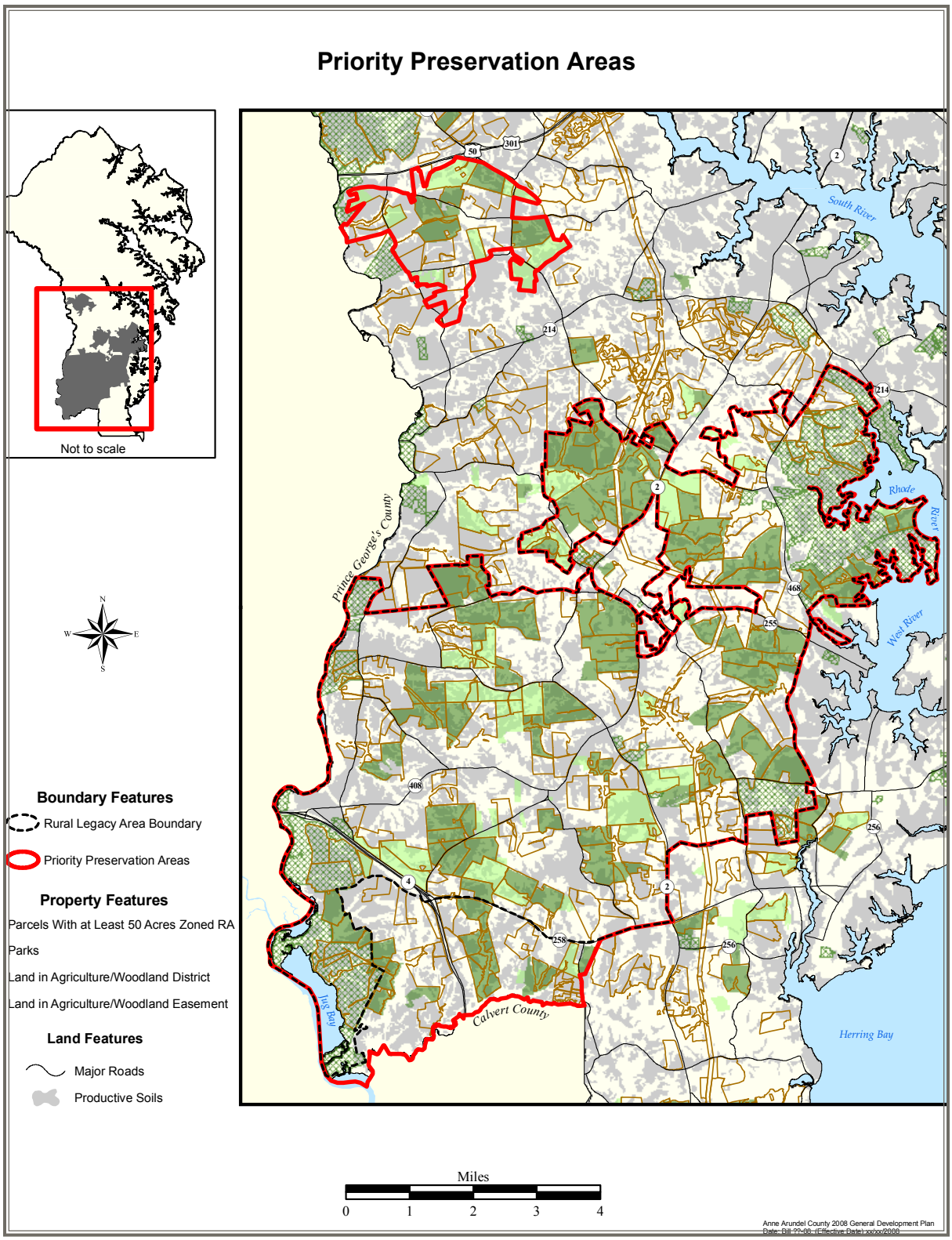
- The area must contain productive agricultural or forest soils or be capable of supporting profitable agricultural and forestry enterprises;
- The area must be governed by local policies that stabilize the agricultural or forest land base so that development does not convert or compromise agricultural and forestry resources;
- The area must be large enough to support the kind of agricultural operations that the County seeks to preserve; and
- The area must include an acreage goal for land to be preserved through easements and zoning in the PPA equal to at least 80% of the remaining undeveloped areas of land in the area.

Based on these criteria, the County has defined a PPA boundary by identifying properties that contain productive soils (Class I, II or III soil types), that lie within the Rural Agricultural (RA) zoning district, and that are 50 acres or more in size. The County also took into consideration proximity to land parcels already protected by an agricultural preservation easement as well as the potential to form larger contiguous areas of preserved land.

The results of this analysis are shown in Figure 8-2. The PPA consists of approximately 39,430 acres of land in two separate areas and includes approximately 450 individual land parcels that are at least 50 acres in size and are zoned RA. The PPA contains the entire Rural Legacy Area which comprises approximately 83% of the total PPA acreage. Within the PPA, 14,262 acres are currently protected under agricultural districts and easements, of which 3,050 acres are in agricultural districts. An additional 5,964 acres are County or State-owned parkland. The remaining 19,204 acres are not protected by an easement or as parkland. Using the State's criteria, the County can establish a goal of protecting 80% of the remaining undeveloped land within the PPA.

Other factors to be considered include the size of properties and the potential for further development. Although currently only properties of 50 acres or more in size are eligible to participate in the MALPF or County Agricultural and Woodland Preservation programs, it should be noted that there are existing properties of 15 to 30 acres in size that can and in some cases are being used for vegetable growing, flowers, grapes, horses and other agricultural uses. In addition, the County's RA zoning district includes many properties of less than 30 acres that are developed with a single residence, and while many of these properties are not protected under an easement, they are essentially "protected" from further development based on the allowable densities in the RA district. Further research will be needed to determine how much of this acreage is actually developed to its full

Figure 8–2 Priority Preservation Areas



potential. However, some of the 19,204 unprotected acres in the PPA most likely do not have additional development potential and are therefore in a sense protected.

Program Evaluation and Strategies to Meet Preservation Goals

Anne Arundel County has made some significant achievements toward preserving its agricultural heritage over the past 25 years. The County has worked closely with the State Departments of Agriculture and Planning to certify and maintain its preservation programs, and continues to use a variety of approaches including legislation, outreach, land use controls and voluntary acquisitions to accomplish its mission.

An overall goal of preserving 20,000 acres of agricultural land in the County was established in 1993, and the County has been able to preserve significant amounts of acreage each year since that time. Approximately 50% of the total acreage preserved under agricultural easements to date was acquired between 2000 and 2006, in part due to the Installment Purchase Agreement option that was added to the County's preservation program in 1999 to stimulate interest.

Over 11,000 acres have been preserved under protective easements.

In spite of these accomplishments, there is some concern that it will become increasingly difficult for the County's voluntary preservation programs to compete with market forces and development pressures in its planned rural and agricultural areas. Currently, landowners are offered a percentage of fair market value for a development rights easement plus a County property tax credit on up to the first $250,000 of assessed value of structures including dwellings. While this represents an attractive financial incentive for participation in the programs, the programs must remain competitive with market forces if the County is to meet its preservation goals. Additional incentives or revisions to the programs to increase their value may be required in order to attract new interest in the programs and sustain the rate of participation experienced over the past several years.

In addition, established goals for preservation must be realistic and attainable. A more complete land parcel inventory and holding capacity analysis is needed in order to ascertain whether the 20,000-acre goal remains attainable. This research will provide information necessary to assess the remaining available acreage that meets the qualifying criteria under the current purchase of development rights programs. It will also help to determine whether there are feasible revisions to those programs that would allow additional acreage to qualify for the programs and thus enhance the County's ability to meet its goals.

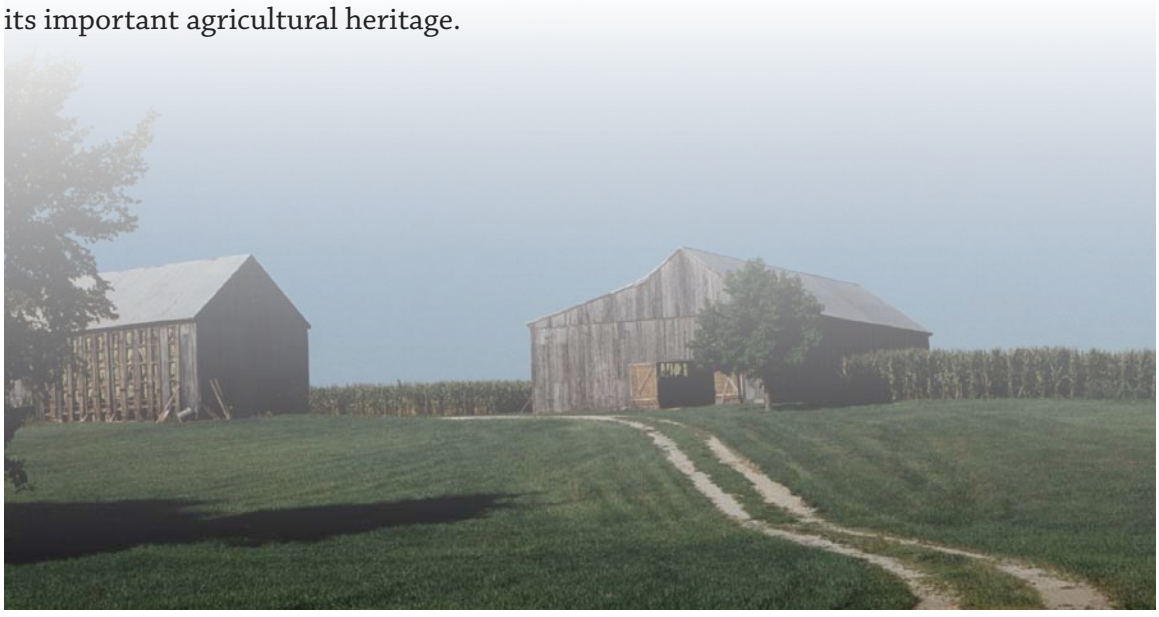
The following strategies are proposed to aid in attaining the goal of preserving additional acreage within the PPA.

Policy: Preserve 80% of undeveloped land within the Priority Preservation Area through protective easements in order to meet the State's PPA protection goal.

Actions:

- Conduct a detailed development capacity analysis to determine the number of individual properties within the PPA that have remaining development rights to sell and that are eligible to participate in an existing agricultural preservation program.
- If the inventory of eligible properties is small, determine whether revisions can be made to existing programs that would increase the number of eligible properties.
- Revise the Agricultural and Woodland Preservation Program regulations to increase participation in the program and make it more competitive with market forces.
- Revise the Preservation Easement Purchase Priority Rating System to grant extra points to properties located in the Priority Preservation Area.
- Increase the Preservation Easement Value from 60% of fair market value of fee simple land to 70%.
- Revise the permitted uses on an agricultural easement property to include accessory uses on minimal acreage that will not interfere with farming operations, as well as other rural economy uses.
- Consider revisions to the Zoning Ordinance to remove Planned Unit Development (PUDs) as a special exception use in designated Rural Areas.
- Promote rural economy land uses such as horse breeding and training, vineyards, orchards, vegetable growing, heritage tourism, crafts making, etc. in designated rural areas.

The County will continue to explore other potential strategies as well in order to protect its important agricultural heritage.



Chapter 9: The Transportation Plan

The Transportation Plan is another important component of the General Development Plan, along with the Land Use Plan. These two components are interdependent and should be prepared collaboratively so that transportation services and infrastructure will support and promote the land use and development patterns desired.

The County's transportation planning approach focuses on seven key elements:

- Maintenance of the existing transportation facilities inventory to protect public investment in facilities and to support redevelopment and revitalization of the County's neighborhoods and commercial areas;
- Expansion of the transportation facilities inventory to meet the increasing travel demand;
- Emphasis on improving safety for motorists, pedestrians, and bicyclists;
- Provision of alternative means of mobility through increased transit service;
- Implementation of travel demand management strategies;
- Inclusion of emergency management principles in transportation plans; and
- Expansion of pedestrian and bicycle facilities.

The County's key transportation objective is to create a safe and well-managed transportation network that provides greater choice for the traveler and limits or even reduces congestion on the road system. Various roadway improvements, improved regional and local transit, expanded bicycle and pedestrian networks, and improved connections between the different modes will help to lessen reliance on the single-occupancy vehicle and reduce vehicle emissions. Additionally, land use and housing policies supporting mixed-use development, higher densities around transit hubs, and retention of neighborhood retail and services will further promote transit use and help reduce new trips.

Proposals in this Plan that will help accomplish the above include the following:

- A greater County leadership role in the pursuit of regional transportation funding, planning, and improvement strategies, with strong advocacy for sufficient funding to implement local transit and roadway and highway projects.
- Continued monitoring and management of roadway congestion in the County through level of service standards, signal timing, access management, and other means.
- Local roadway and regional highway interchange improvements to increase safety, improve flow and reduce congestion.
- Improved and expanded local bus service, and more accessibility to commuter bus service.
- More accessibility to commuter rail service.
- Continued support of transportation demand management programs and techniques to encourage less driving.
- Continued implementation of the Bicycle and Pedestrian Master Plan to provide an expanded bikeway and sidewalk network and greater overall support for biking and walking.

- Reaffirmation of Goals and Policies of the *1997 General Development Plan* where those Goals and Policies do not conflict with proposed Plan recommendations or in those instances where the 1997 Goals and Policies have not yet been implemented.

The following sections of this chapter present information on the various modes of transportation available in the County today: the highway network, transit service, rideshare and van pool services, airports, and the pedestrian and bicycle network. These are then followed by recommendations for a transportation functional master plan, priority highway improvement corridors, transportation demand management strategies, and other related policies and actions.

Land Use and Transportation Interaction

There is a relationship between land use patterns and the use of transportation facilities. Anne Arundel County is a suburban jurisdiction with identified town centers, extended commercial districts along its major arterial highways such as MD 2 and MD 3, and low density residential uses in other areas.

As a suburban jurisdiction located between the two major urban centers of Washington, D.C. and Baltimore, the transportation investments (both highways and transit) have been made to support travel between those areas through the County. Highway facilities which carry travel within the County experience significant travel demand in part because of existing development patterns and densities. The relatively low residential densities over much of the County make it difficult to support mass transit opportunities and tend to result in longer vehicle trips.

Successfully achieving development patterns that result in fewer vehicle trips and increase public transit viability requires the convergence of land use and transportation facility design as well as a diversity of uses. Combined, these interact to generate shorter-distance person trips which can reduce longer distance automobile travel for work, social/recreational, and other purposes. Facility and land use design must include opportunities for safe pedestrian and bicyclist travel, as incorporated into the design of the roadway as well as the design of the land use.

The Highway Network

The County's highway network consists of approximately 4,850 lane miles of roads and is the predominant mode of travel used by residents and employees in the County. This section describes the roadway Functional Classification system, roadway design considerations, and roadway levels of service under existing and future conditions.

Functional Classification

Transportation planning for highway facilities must consider the relationship between the function of the roadway, the land use pattern served by that facility, and the design of that facility to make it compatible with both the adjacent land use and the type and volume of travel generated by that land use.

The GDP Background Report on Transportation (May 2008) presents a detailed discussion of the functional classification system of highways and roads in the County. Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of traffic service that they are intended to provide. Typically, travelers will use a combination of various classes of roadways over the course of their trips.Each type of road has a specific purpose or function. Some provide land access to serve each end of the trip. Others provide travel mobility at varying levels, which is needed en route.

There is a basic relationship between functionally classified highway systems in serving traffic mobility and land access. Anne Arundel County identifies five levels of functional classification:

Freeways are high speed, multi-lane facilities with a high degree of access control. These facilities provide for efficient and uninterrupted travel over long distances serving interstate and commuter needs. They should provide a high level of traffic service for travelers making longer distance trips at high speeds. Freeways provide no direct access to abutting properties.

Principal Arterials serve the needs of through traffic for moderately long trips. They serve the major activity centers in the County and major portions of the trips entering or leaving urban areas. Principal Arterials are the primary travel route for commercial, commuter and recreational travel in rural areas. They also provide secondary linkages between large urban centers and suburban population / employment centers. Access may be controlled through medians or by the limitation of curb cuts through the orientation of access for new developments. Typically, they intersect minor arterials, collector or major activity locations.

Minor Arterials connect higher functional class facilities, activity centers, regions of the area, and major county roads. Traffic is composed predominantly of trips across and within regions of the city. They provide service to traffic at a somewhat lower level of travel mobility than principal arterials with minimal control of access to abutting commercial, industrial and residential properties. Direct access to individual properties and neighborhoods is discouraged.

Collectors provide traffic circulation within neighborhoods, commercial and industrial areas. These roads collect traffic from local streets in neighborhoods and channel it into

the arterial system. Connections between arterials should be indirect or should not be allowed in order to discourage use by traffic from outside the neighborhood.

Local roads are designed specifically to have high accessibility to abutting land and access to the higher classification facilities. They offer the lowest level of mobility and service. Through traffic is deliberately discouraged when possible.

The County's Functional Classification Map of roadways is shown in Figure 9-1. As new roadways are added to the Map, they are classified based on the criteria presented above.

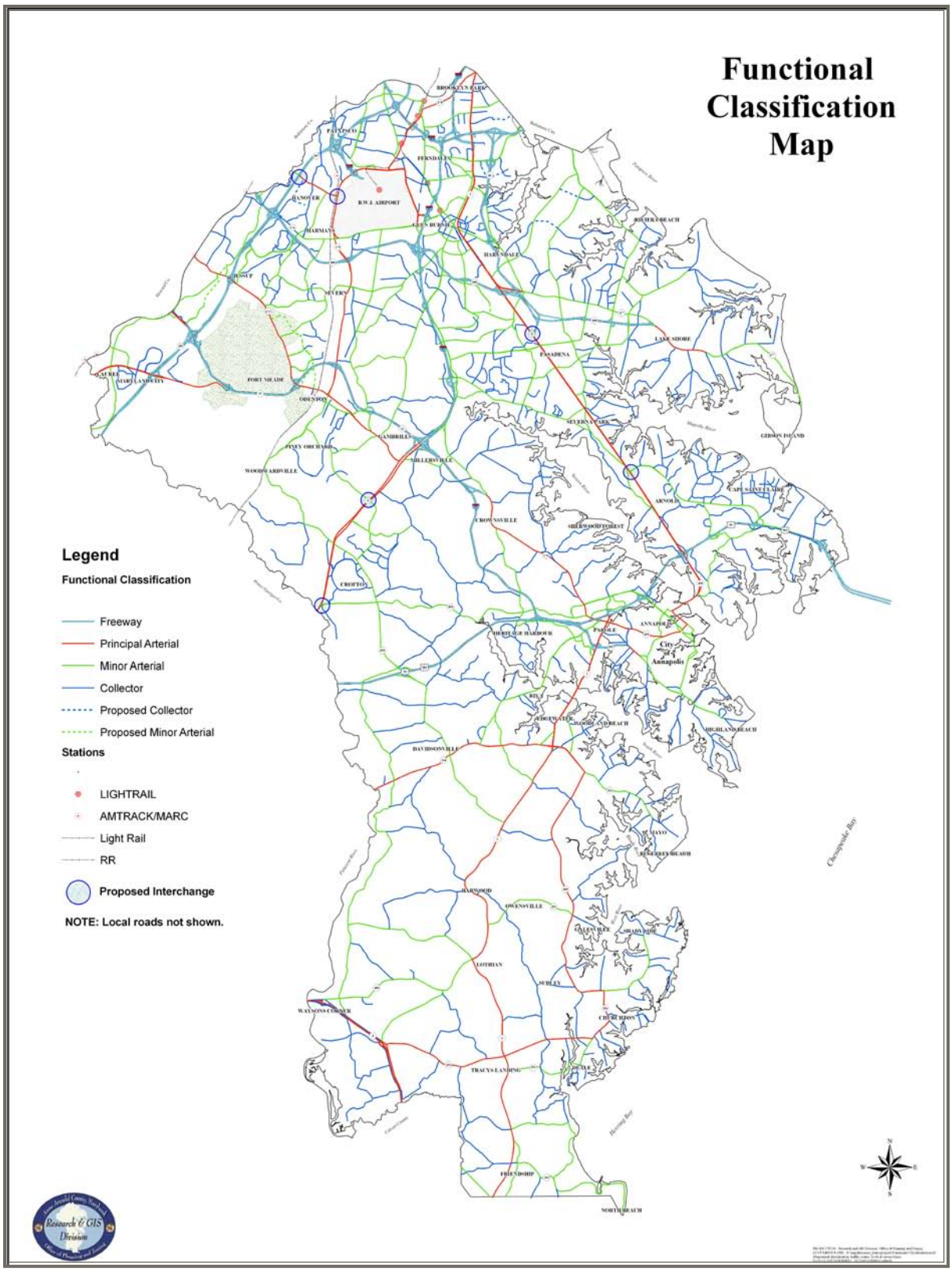
Design of Roadways

Roadways should be designed, or redesigned and constructed, based on their function (access versus mobility), the adjacent land use (right-of-way width and needed appurtenances such as medians, sidewalks, trails, stormwater drainage, design speeds), and volume (sufficient number of travel and turning lanes to meet the anticipated vehicular demand).

Design and redesign of County roadways is governed by the County's Design Manual. This manual must be updated to reflect changes in design standards, compatibility with adjacent land use activities, standards for designated evacuation routes and emergency utilization, inclusion of pedestrian/bicycle use within the right-of-way and, where appropriate, transit use. In seeing transportation facilities as part of the community rather than a divider of neighborhoods, greater emphasis on context sensitive solutions (or design) should be incorporated into the design and redesign of roadways whether by governments or by the private sector.

The roadway's surrounding environment must be considered in context and physical location during planning and design. The design must consider both the physical constraints as well as the opportunities such as the characteristics of the corridor, the use of the corridor, the destination spots along the way that require safe access for pedestrians to cross, use by bicycles and other non-motorized vehicles or pedestrians traveling along the road, vegetation along the corridor, important viewsheds from the road, the use by bus or light rail transit vehicles, the width of the existing roadway and its fit with its surroundings, presence of historic or especially sensitive environmental features (such as wetlands or endangered species habitats) along the roadway, the road's comparison to other roads in the area, particular features or characteristics of the area that should be preserved (a rural character, a neighborhood atmosphere, or a main street), and the population served by the roadway (elderly, disabled, children etc).

Figure 9–1 Functional Classifications of Roads



Therefore, this Plan makes the following roadway design recommendations:

Actions:

- Update and revise the County's Design Manual and appropriate sections of the Subdivision Regulations to incorporate context sensitive design requirements to promote design and redesign of the County's roadways to be more compatible with the surrounding land uses and the GDP Land Use Plan.
- Establish street design criteria to the extent permitted by State law to support alternative transportation modes to better meet user needs and minimize conflicts between competing modes.

Level of Service

Level of service (LOS) is a grading and evaluation system for the amount of congestion on a roadway, using the letter LOS A to represent the least amount of congestion and LOS F to refer to the greatest amount. The appropriate degree of congestion (that is, the level of service) to be used in planning and designing highway improvements is determined by considering a variety of factors. These factors include the desires of the motorists, adjacent land use type and development intensity, environmental factors, and aesthetic and historic values.

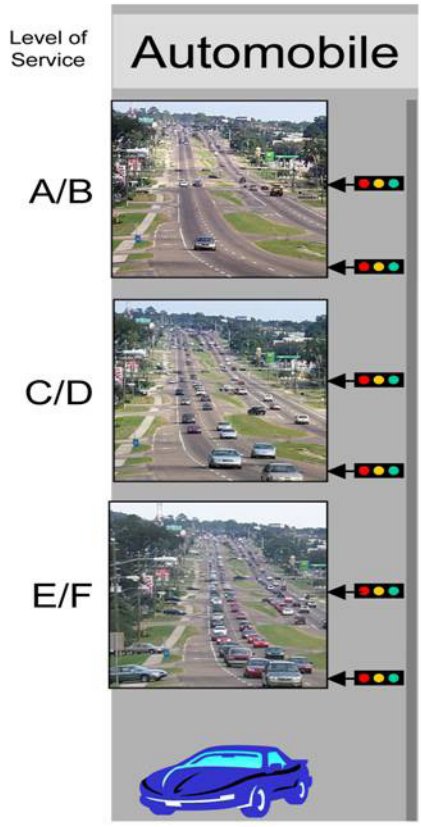
To determine future (anticipated) level of service, the County's travel demand model generates vehicle trips on an average daily basis. There is a relationship between daily travel and peak hour travel demand where daily travel demand generated by the model is compared to the maximum service flow of the roadway based on the road's operating characteristics (numbers of lanes, width of lanes, and number of signals per mile). When that relationship exceeds 80% (generated traffic is 80% of daily service flow), vehicles using the roadway segment could be operating at a lower than acceptable level of service in the peak hour.

Peak-Hour Level of Service

Once an appropriate design speed has been selected, the other basic defining elements of the highway (i.e., the number of lanes and the basic configuration of junctions with other highway facilities) can be determined through application of the concept of acceptable peak hour level of service. For a comprehensive treatment of this topic, refer to the *Highway Capacity Manual*. The graphic shown below offers a visual understanding of the concept.

As mentioned above, a variety of factors are weighed in determining the policy level of congestion for planning and design. The factors must be weighed against the financial resources available to satisfy the motorists' desires. Where possible, the County and the Maryland State Highway Administration (SHA) recommend LOS D as a standard

for operation during the peak demand hours. However, this standard is not always achievable, especially in an urban or town center setting.



Source: Florida DOT Quality of Service Handbook, 2002

Maps depicting the relationship of the maximum daily service flow with the observed (for 2005) and the forecast (for 2035) traffic are shown in Figures 9-2 and 9-3, respectively. The County's travel demand model provides daily traffic as its output. That output is the estimated amount of vehicles using a specific segment of a road in a 24-hour period. However, roadways receive most of their use in a smaller segment of time typically referred to as morning or afternoon peaks. It is not uncommon for eight to twelve percent of all daily traffic to use a roadway and its intersections within a one hour time frame. Therefore a relationship between daily and peak demand can exist where the daily flow is less than the total amount of traffic the roadway can absorb in 24 hours, but the peak demand is greater than the roadway can accommodate in a specific hour. The closer that daily volume comes to the amount of traffic the roadway can absorb in 24 hours, the longer the period of time is that motorists using the roadway will have to deal with poor operating conditions worse than LOS D, which is the typical standard for any particular hour. However, in more urbanized and developed areas, LOS D standards are perhaps not attainable, or necessarily desirable. Therefore a better approach may be to establish LOS standards based on the type of land use in the area.

This Plan makes the following recommendation related to roadway level of service:

Action:

- Establish LOS standards based on planned land uses and densities so that the LOS standard may be lower in town centers and urbanized areas where transit and other mobility options are available and higher in rural and less developed areas based on land use recommendations.

Highway Improvement Projects

The output of the travel demand model indicates that several major highway facilities in the County will require upgrades to improve existing levels of service and to meet anticipated travel demand by 2035. These projects are in various stages of planning, design, or construction as indicated in Table 9-1.

Table 9–1 Highway Improvement Projects

Highway Improvement Projects				
LOCATION		2005 Marked Lanes	2035 Proposed Lanes	STATUS / COMMENTS
FROM	TO			
I-195 from AA/Baltimore County Line to Terminus				
AA/Baltimore County Line	BW Parkway	4		Initiate Feasibility Study
BW Parkway	MD 170	5		Initiate Feasibility Study
MD 170 East	Terminus	4		Initiate Feasibility Study
I-695 from AA/Baltimore County Line to AA/Baltimore County Line				
AA/ Baltimore County Line	AA County/ City of Balitmore Line	6	8	NEPA/LRP. I-695 to I-195 under construction.
I-895 from MD 2 to AA/Baltimore County Line				
MD 2	AA County/ City of Balitmore Line	4		HNI/LRP
I-97 from MD 695 to US 50				
MD 32	US 50/301	4	6	HNI/LRP. Managed lanes
MD 176	MD 178	6	8	HNI
MD 695	MD 176	6	8	HNI
MD 100 from Howard County Line to Mountain Road				
Howard County Line	MD 10	4	6	HNI
MD 10	I-97	4	6	LRP
I-97	Mountain Road	4	4	Initiate Feasibility Study
MD 170 (Telegraph Road) from MD 175 to MD 176				
MD 176	MD 100	4	6	HNI
MD 100	MD 32	2	4	HNI
MD 32	MD 175	2	4	HNI
MD 173 (Fort Smallwood Road) from MD 607 to Wagner Station Road				
Wagner Station Road	Edwin Raynor Boulevard	4	4	Initiate Feasibility Study
Edwin Raynor Boulevard	MD 607 (Hog Neck Road)	2	4	Initiate Feasibility Study
MD 174 (Reece Road) from MD 175 to MD 170				
MD 175	MD 170	2	4	LRP
MD 175 (Annapolis Road/Jessup Road) from Howard County Line to MD 170				
MD 170	MD 32	4	5	NEPA
MD 32	MD 295	2	6	NEPA
BW Parkway	Howard County Line	2	4	Initiate Feasibility Study
MD 177 (Mountain Road) from MD 2 to MD 100				
MD 607	MD 100	2		Initiate Feasibility Study
MD 648	MD 607 (Hog Neck Road)	2		Initiate Feasibility Study
MD 648 (B&A Boulevard)	MD 648 (Solley Road)	4		Initiate Feasibility Study
MD 10	MD 648	4		Initiate Feasibility Study
MD 2	MD 10	4		Initiate Feasibility Study
MD 198 (Laurel Fort Meade Road) from Howard County Line to MD 32				
MD 32	MD 295	4		NEPA
MD 295	Prince George's C/L	6		Initiate Feasibility Study
MD 2 from MD 214 to MD 10				
MD 10	College Parkway	4	6	HNI/LRP
College Parkway	US 50	4	6	HNI
US 50	MD 665	6	6	HNI/LRP
MD 665	MD 214	6	6	Initiate Feasibility Study
MD 214 (Central Avenue) from MD 253 to MD 468				
MD 253	MD 468	2	4	CIP
MD 295 (BW Parkway) from Prince George's County Line to I-695				
Prince George's County Line	MD 175	4	4	National Park Service road
MD 175	Arundel Mills Interchange	4	6	Constructed
Arundel Mills Interchange	MD 100	4	6	Constructed

Table 9–1 Highway Improvement Projects

Highway Improvement Projects				
LOCATION		2005 Marked Lanes	2035 Proposed Lanes	STATUS / COMMENTS
FROM	TO			
MD 100	I-195	4	6	NEPA
I-195	I-695	4	6	LRP/ Under construction.
MD 3 (Robert Crain Highway) from MD 175 to MD 450				
MD 175	MD 450	6	6	NEPA / Interchanges.
MD 32 from Howard County Line to MD 175				
Howard County Line	MD 295	4	8	LRP
MD 295	MD 175	4	6	Initiate Feasibility Study
MD 4 from Calvert County Line to PG County Line				
Calvert County Line	MD 259	4	4	Access Controls
MD 259	MD 408	4	6	HNI
MD 408	PG County Line	4	6	HNI
MD 424 (Davidsonville Road) from MD 3 to Rutland Road				
Rutland Road	MD 450	2	2	Initiate Feasibility Study
MD 450	MD 3	2	4	HNI / Feasibility
MD 607 (Hog Neck Road) from MD 173 to MD 177				
MD 173	MD 177	2	4	HNI / Feasibility
MD 177	MD 100	2	4	CIP / Construction
MD 665 (Aris T. Allen Blvd.) from US 50 to Forest Drive				
US 50	Forest Drive	4	4	CIP / Construction
MD 713 (Ridge Road) from MD 175 to MD 100				
MD 175	MD 100	2	4	LRP
US 50 from Bay Bridge to MD 3				
MD 3	I-97	6	8	Managed Lanes
I-97	MD 665	6	8	HNI/LRP/ Feasibility
MD 665	MD 179	6	8	HNI/LRP/ Feasibility
MD 179	Bay Bridge	6	8	Requested Study
Benfield Boulevard from Veterans Highway to Benfield Road				
Veterans Highway	Benfield Road	2	4	Feasibility
Benfield Boulevard from Veterans Highway to Robinson Road				
Veterans Highway	Robinson Road	4	4	Feasibility
Forest Drive from MD 665 to Hill Top Lane				
MD 665	Hill Top Lane	4	6	CIP
Hanover Road from MD 295 to MD 170				
Howard County Line	MD 295	2	4	NEPA / Interchange
MD 295	MD 170	2	4	NEPA
Magothy Bridge Road from MD 2 to MD 177				
MD 177	MD 100	2	4	CIP / Construction
MD 100	Edwin Raynor Boulevard	2	3	Feasibility
Edwin Raynor Boulevard	MD 648	2	3	Initiate Feasibility Study
MD 648	MD 2	2	3	Initiate Feasibility Study
Robinson Road from Benfield Road to MD 2				
Benfield Road	MD 2	2		Feasibility

Figure 9–2 2005 Transportation Level of Service

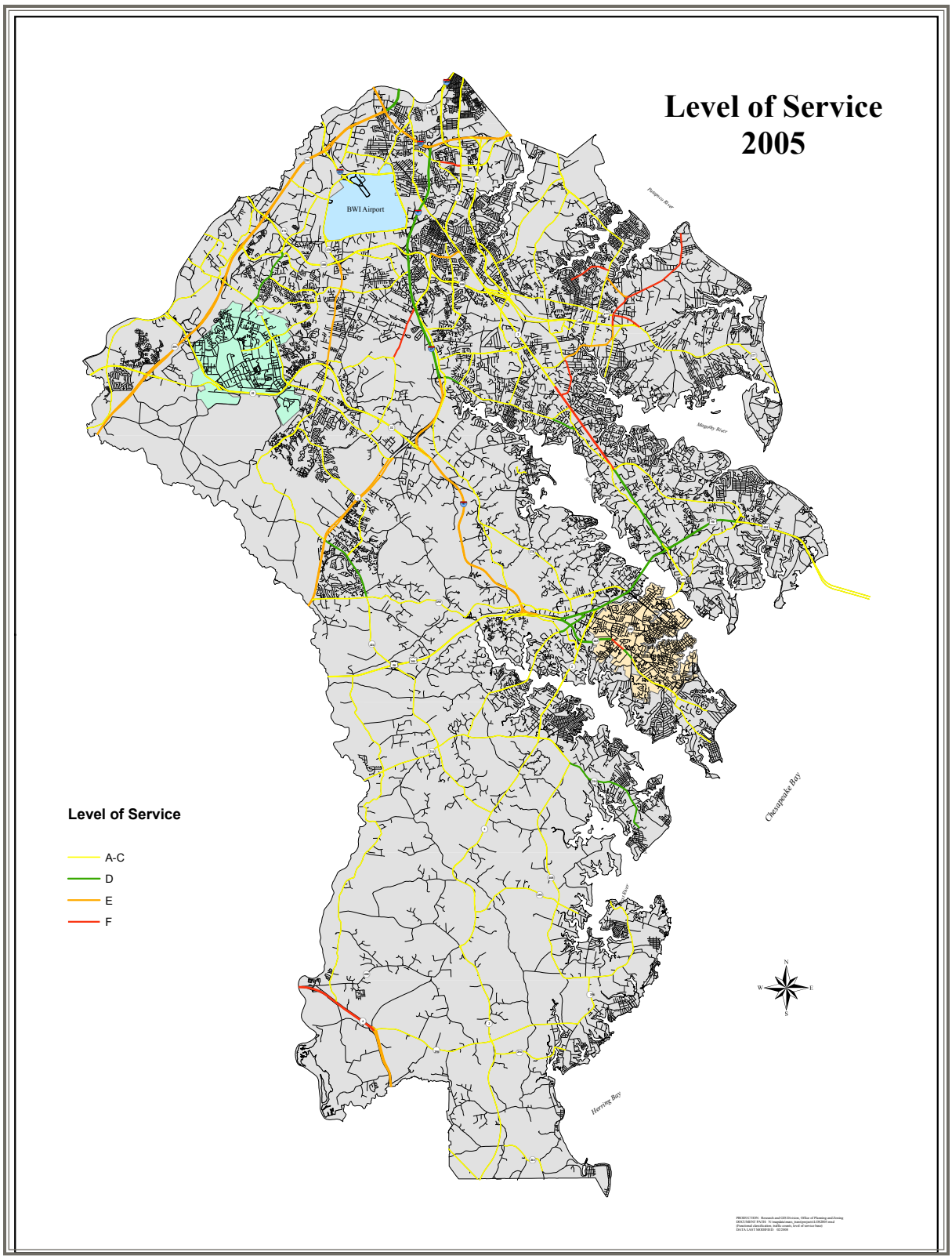
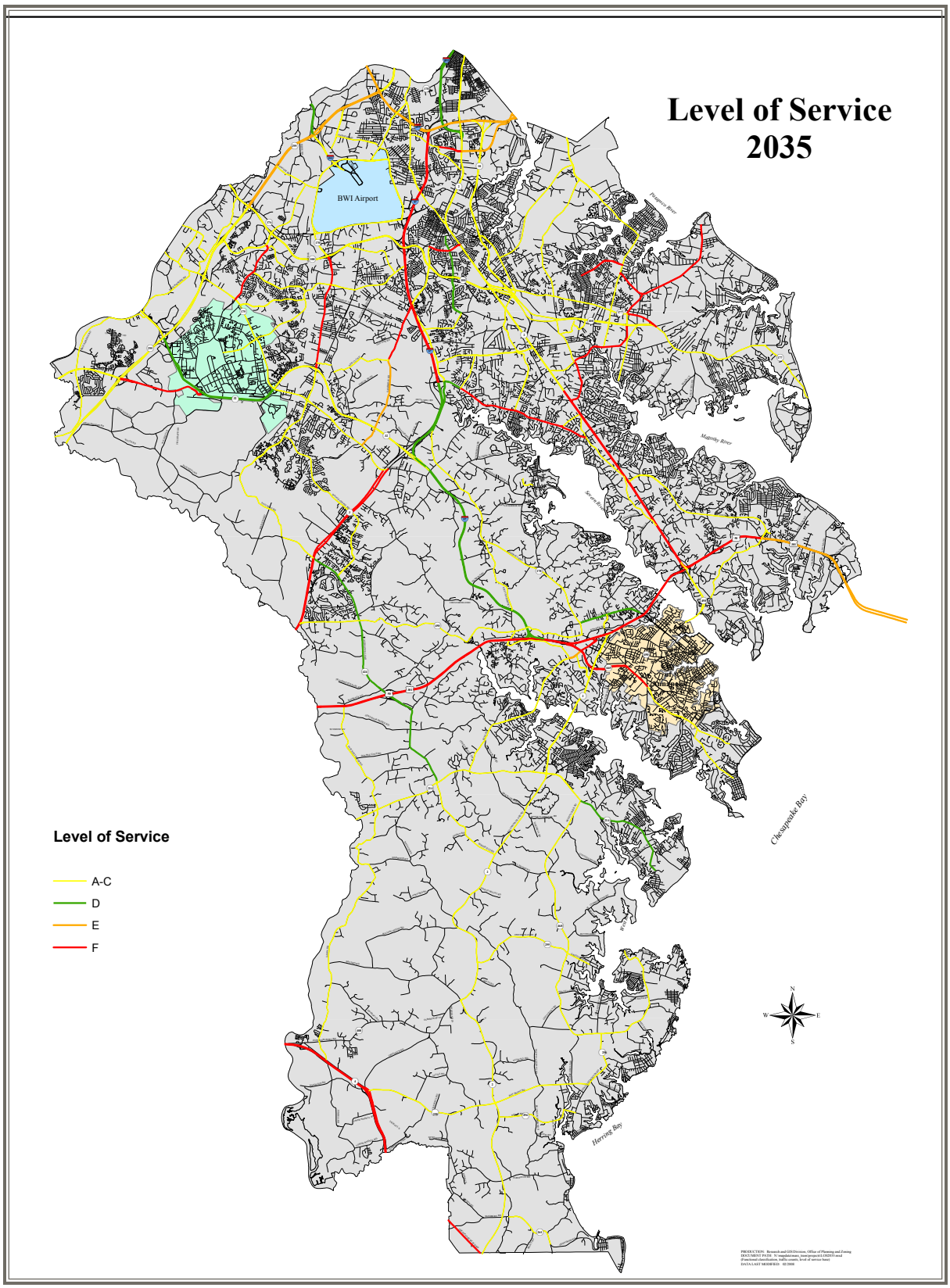


Figure 9–3 2035 Transportation Level of Service Forecasts



In general, projects on major highway facilities are identified through analysis and programmed for construction through three stages in State methods:

- Consolidated Transportation Program (CTP) which is the State of Maryland's capital budget document identifying all funds to be expended (Federal, State, local and other) on State-owned facilities. The document has a six-year horizon.
- The Long Range Plan (LRP) which identifies projects arrayed over a longer span of time, and although funds are not presently identified for all phases of project development (planning, design, right-of-way acquisition and construction) there is a reasonable assumption that these activities will occur over the 30-year span.
- The Highway Needs Inventory (HNI) which is limited to highway facilities for which there is an assumed need to plan, design and construct improvements over a longer span of time beyond known funding

Projects are typically noted in the Highway Needs Inventory, moved into the Long Range Plan as funding becomes reasonable to assume, and finally identified in the Consolidated Transportation Program when funding becomes available. Once a project has been funded, an environmental impact study is typically required during the preliminary design stages in accordance with the National Environmental Policy Act (NEPA).

In addition to the State process, the County has funded State facilities either in total or in part using impact fees, general obligation bonds, taxing districts and other forms of revenue generation. Those projects appear in the County's Capital Improvement Program (CIP).

Transit Service

Transit in the County is provided by both fixed guideway (rail) and by bus transit. Bus transit is provided both in terms of State operated commuter and fixed route transit by the Maryland Transit Administration (MTA) and locally operated transit systems provided by the City of Annapolis Transit (AT) and by the Corridor Transportation Corporation (CTC). Both AT and CTC receive operating subsidies from the County to offset the cost of providing routes within County areas. The County is preparing a Transit Development Plan (TDP) which is required by MTA for transit funding purposes. The TDP will identify areas underserved in the County and recommend priorities to deliver transit service.

The long term intent is to combine management of the fixed route County-operated services with the demand-response and specialized transit operated by the Department of Aging and Disabilities. This action will improve the coordination of services and reduce duplication of effort.

Equally important in providing transit services are the landside support elements of transit. Among those are transit-oriented development opportunity areas, intermodal centers, sidewalks, lighting, bus passenger shelters, and park and ride lots.

Figure 9-4 presents a Transit Investment Corridor (TIC) Map showing recommended transit facilities and/or corridors for transit investment, intermodal center locations, and fixed route bus service. The TIC Map recommends that major highway corridors be designed or redesigned to be transit compatible to offer higher quality transit service connecting major activity centers in the County and connecting the County to regional activity centers outside the County, such as using Solomons Island Road-Governor Ritchie Highway (MD 2) from Edgewater to I-695 as a means of connecting to Baltimore and John Hanson Highway (US 50-US 301) from Parole to Bowie and the HOV lanes as a means of connecting to the Washington Metropolitan Area, as examples.

Fixed Guideway Transit

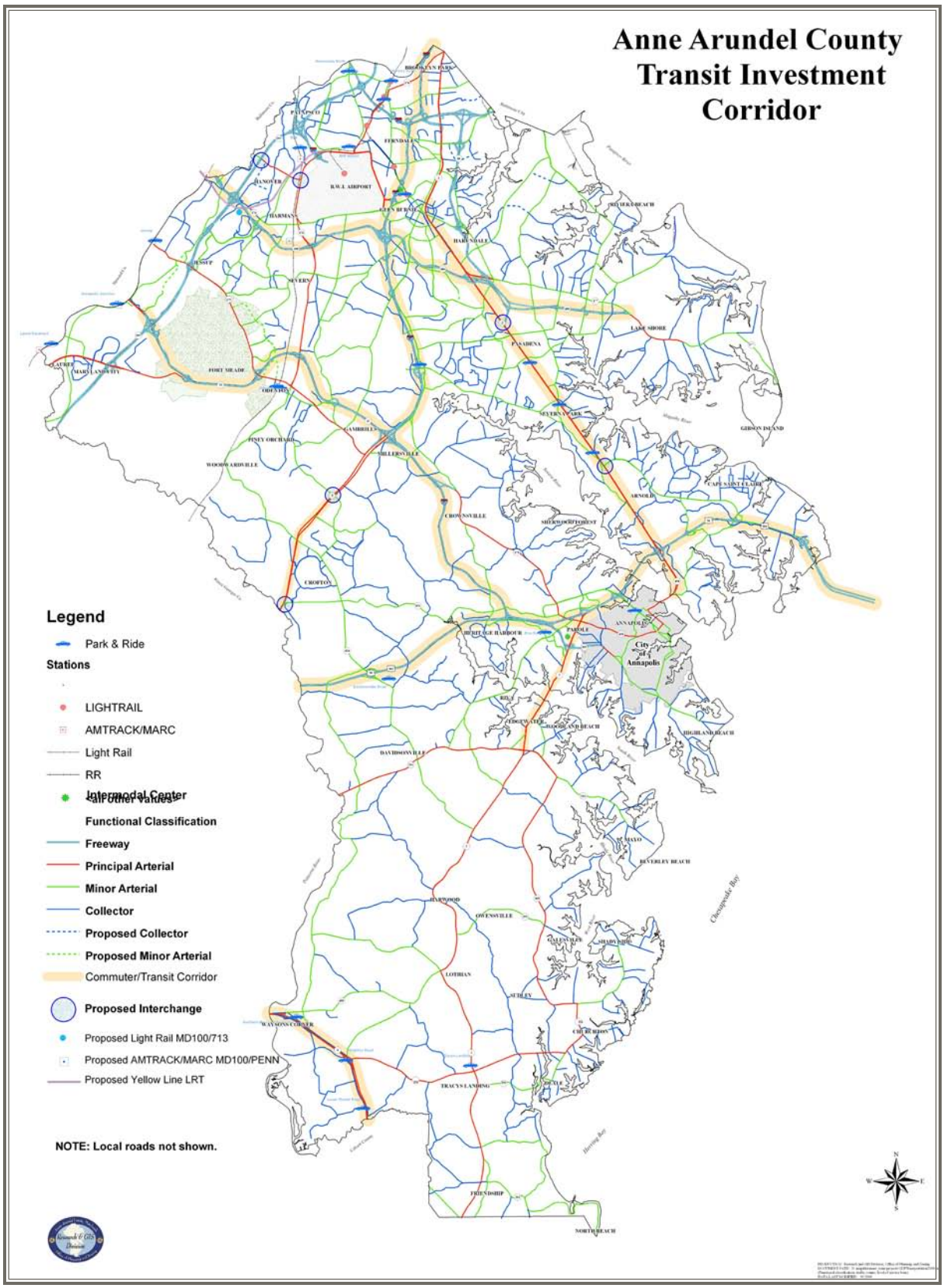
Light Rail Transit Anne Arundel County is served by seven Light Rail stations. Located at Nursery Road, North Linthicum, Linthicum, the BWI Business District, the BWI Thurgood Marshall Airport, Ferndale and Cromwell Station/Glen Burnie, these stations offer daily connections both to and from the City of Baltimore and beyond. As part of a regional process, the County participated in the Baltimore Regional Rail Plan. That plan included a proposed extension of the Yellow Line from the BWI Business Park to the Dorsey Road MARC station on the Camden Line and ultimately connecting Columbia in Howard County.

The GDP Transportation Plan includes this alignment and recommends its implementation between the BWI Business Park Light Rail Station and the Dorsey MARC station.

Maryland Rail Commuter System In addition, Anne Arundel County has easy access to five MARC Commuter Rail Stations as well. BWI and Odenton are located on the Penn line. Dorsey, Savage and Jessup are situated on the Camden or CSX Line. Combined, these stations accommodate approximately 3,700 riders per day via the Penn and Camden Lines. The Odenton Station, on average, accounts for more than 50% (2,100) of that ridership, followed by BWI with 1,300 daily riders. The predominant travel pattern for commuters utilizing MARC trains continues to be from Anne Arundel County southward toward the Washington metro area.

Combining the growth in employment opportunities in the Washington Metro Area with the increasing financial and environmental costs of operating an automobile for work trips and the congestion on roadways leading into the Washington Metropolitan Area, this Plan recommends improving accessibility to MARC stations by adding a Penn Line station and additional road access, parking, pedestrian / bicycle facilities, and bus transit connections.

Figure 9–4 Transit Investment Corridors



Bus Transit

Anne Arundel County is served by various operators and different styles of bus transit service. Among these are traditional fixed route service to Baltimore, commuter bus services connecting to Washington, D.C. and the WMATA Metrorail System, and community based smaller fixed route services provided by Annapolis Transit and by Corridor Transportation Corporation's Connect-A-Ride (CAR) service offering neighborhoods access to transit via smaller buses.

The County's vision is to tailor transit services to the areas they serve and to augment the services provided by MTA with circular routes connecting neighborhoods with desired employment, transit, and activity centers. The vision in South County is to offer demand-response style services to provide mobility to those persons residing in areas where traditional transit would be cost prohibitive.

Maryland Transit Administration Presently, MTA operates three commuter weekday only bus routes (921, 922 and 950) between Anne Arundel County and the Washington metro area. Originating on Kent Island and in Annapolis, these three routes alone currently accommodate nearly 2,400 passengers per day, the majority of which board at the Harry S. Truman Park & Ride. The MTA 14 bus route offers service extending from the Patapsco Light Rail Station to the City of Annapolis, concentrating mainly on the MD 2 corridor. Likewise, the MTA 17 bus route serves as a connection between the BWI Business District and the Arundel Mills Complex. Both the 14 and 17 routes offer service seven days a week.

Corridor Transportation Corporation (CTC) Connect-A-Ride CTC provides transit service to Laurel, Jessup, Maryland City, Arundel Mills, Odenton, Glen Burnie, Pioneer City, and Seven Oaks in the western portion of the county, as well as Edgewater, South River Colony, Shadyside and Deale to the south. CTC operations costs are covered through a combination of Federal, State and County grants, plus revenue generated from passenger ticket sales. Routes operated by CTC under its Connect-A-Ride services link the County with Prince George's, Montgomery and Howard Counties. Since capital assets of transit (such as garages and vehicles) are not owned by the County, the cost of operating these routes is increasing in direct correlation with the depreciation costs of assets owned by CTC's operator. Those cost increases do not reflect the increased cost of fuel, insurance or labor costs, which account for nearly 80% of the hourly cost to provide transit service.

Annapolis Transit Annapolis Transit (AT) services the greater Annapolis area (including Arnold and Edgewater) as well as the BWI Thurgood Marshall International Airport. The system consists of three (3) shuttle routes and one fixed route system comprised of eleven (11) individual routes. Ridership equates to over 1.3 million passengers annually. AT funding comes from a combination of Federal, State and local sources, as well as an operating subsidy grant provided by the County. Census statistics and definitions used by the U.S. Department of Transportation have recently changed, resulting in the City

of Annapolis losing a significant percentage of operating subsidy funds previously made available because of its status as a small, urbanized area. The loss of this funding will most likely impact the extent of service AT is able to provide in the future.

Since the County remains a mostly suburban area with established residential and commercial activity centers, bus transit will remain the major opportunity to improve mobility choices for residents and workers because of its cost to initiate and operate ,and its flexibility.

Bus transit provides a major opportunity to improve mobility choices for residents and workers.

This Plan recommends implementing the recommendations for bus transit found in the Transit Development Plan and providing the landside infrastructure (such as sidewalks, street lighting, bicycle racks, park and ride lots, and pedestrian safety improvements) which are necessary to promote transit use. The Transit Development Plan Map is shown in Figure 9-5.

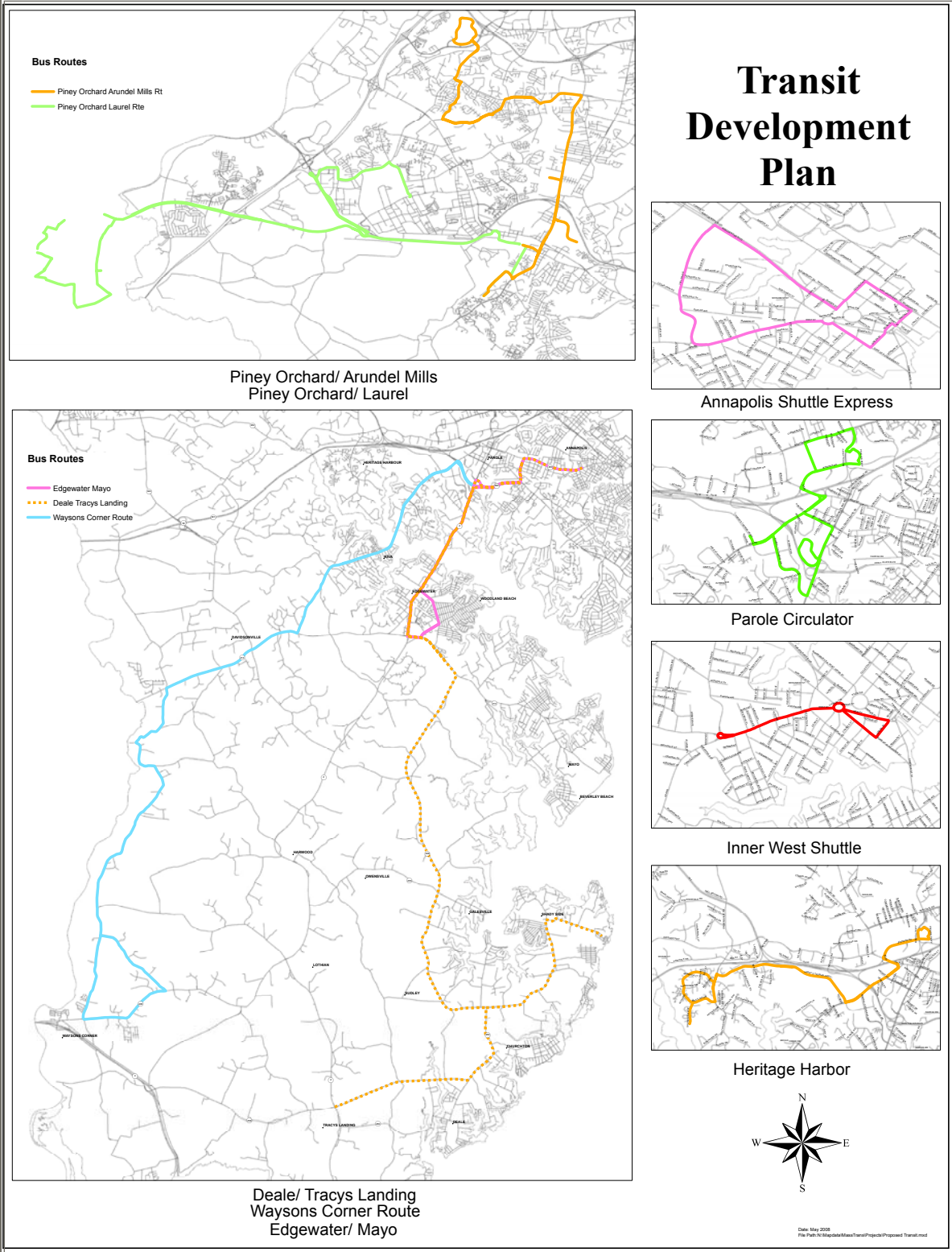
This Plan recommends consolidating transit activities under a single agency to promote coordination of services and reduce confusion among existing and potential users of the mode. It is also recommended that the County obtain the capital assets necessary to operate fixed route and demand-response bus transit. These assets would consist of bus vehicles, radio equipment, computer aided dispatch equipment, automatic vehicle location devices, and a maintenance facility combined with Howard Transit so that the County can eliminate hourly depreciation expenses currently being paid to its contractors. Eliminating these hourly costs will increase the dollars available to provide transit service as recommended by the Transit Development Plan.

The Plan also recommends facilitating development in the vicinity of existing and planned transit nodes through improved access; focusing growth in areas served by existing or planned transit including rail stations and intermodal locations; encouraging improved access, increasing parking availability, and feeder bus service between rail stations and employment areas; and promoting development and revitalization areas that are in scale with the transit provided.

In addition, the Plan recommends the completion of a MARC station feasibility study in the vicinity of MD 100 along the Penn Line to promote the location of a new station where additional access to the line would be possible through park and ride, connecting bus transit, trails, and transit oriented land use activities.

In summary, this Plan makes the following recommendations related to transit service:

Figure 9–5 Transit Development Plan



Actions:

- Combine management of fixed route County-operated services with the fixed route, demand-response and specialized transit operated by the Department of Aging and Disabilities.
- Extend the Baltimore Light Rail Yellow Line from the BWI Business Park Station to the Dorsey MARC Station.
- Improve accessibility to MARC stations by adding a Penn Line station, road access, parking, pedestrian/bicycle facilities, and bus transit connections.
- Implement the recommendations for bus transit found in the Transit Development Plan and provide the landside infrastructure (sidewalks, street lighting, bicycle racks, park and ride lots, and pedestrian safety improvements) necessary to promote transit use.
- Consolidate transit activities under a single agency to promote coordination of services and reduce confusion among existing and potential users.
- Obtain the capital assets necessary to operate fixed route and demand-response bus transit. Sources could be impact fees, utility fees, and bonds.
- Evaluate possible revisions to the impact fee regulations to allow the fees to be used for transit-related projects.
- Facilitate development in the vicinity of existing and planned transit nodes through improved access; focusing growth in areas served by existing or planned transit; encouraging improved access, increasing parking availability, and providing feeder bus service between rail stations and employment areas; and promoting development and revitalization areas that are in scale with the transit provided.
- Identify and, to the extent feasible by law, protect the alignment of the Yellow Line of the Baltimore Central Light Rail Line from BWI Airport to the Dorsey MARC Station.
- Complete a MARC station feasibility study in the vicinity of MD 100 along the Penn Line to promote the location of a new station where additional access to the line would be possible.

Rideshare Car and Van Pooling

With more than 500,000 citizens and over 12,800 employers, Anne Arundel County has one of the state's largest work forces. Subsequently, the County is constantly experiencing an increase in travel demand, leading to congestion of both the highway and transit network if the demand is not effectively managed. An estimated 112,000 county residents commuting outside of the County for work, combined with 144,000 in-county commuters and an influx of 82,000 commuters from neighboring jurisdictions put a constant strain on county infrastructure. To relieve this strain, the County uses two private concerns

to both administer and promote rideshare, car and van pool opportunities within the County.

The Annapolis Regional Transportation Management Association (ARTMA)

In cooperation with both the Maryland Transit Administration (MTA) and the County, ARTMA manages a comprehensive ridesharing program for residents of Anne Arundel County. The mission is to promote transportation options and transit expansion throughout the County while increasing mobility, reducing traffic congestion, and improving air quality as well. The service areas include Annapolis, Parole, Severna Park, Crofton, Crownsville and the entire South County area.

Baltimore/Washington International Business Partnership (BWIP)

Similar to ARTMA, BWIP promotes ridesharing, carpooling and point-to-point van service via Congestion Mitigation/ Air Quality (CMAQ) funding both in and around BWI-Thurgood Marshall International Airport, as well as the Odenton and Glen Burnie Town Centers.

In order to meet the demands for commuter transportation programs and services brought on by increasing residential and commercial development, this Plan recommends the following actions:

Actions:

- Continue to promote rideshare, carpooling, and van pooling strategies to support transit use and offer options beyond the use of single occupant automobiles for mobility.
- Increase employer and resident awareness of rideshare programs, strategies, and opportunities.
- Require use of TDM strategies to reduce vehicle trips generated by new development as a condition of mitigation.

Airports

There are two publicly –owned airports located in the County providing regional, national, and international air service.

BWI Thurgood Marshall International Airport

Accommodating over 21 million passengers annually, this is the largest airport in the State. Owned by the State of Maryland and operated by the Maryland Aviation Administration (MAA) the airport is located in Linthicum, approximately 10 miles south of

Baltimore and 30 miles north of Washington D.C. Close proximity to the Baltimore/ Washington Parkway, Fort Meade and NSA have helped make the airport one of the biggest economic engines in Maryland, serving the federal government, technical, and hospitality and tourism industries.

Tipton Airport

Transferred to the County in 1999 as the result of an earlier BRAC recommendation, Tipton Airport is located south of Fort Meade and operated by the Tipton Airport Authority, a facility management entity that is appointed by the County Executive. Over one hundred aircraft are based at the facility that handles approximately 150 aircraft arrival/ departures daily. Current parameters include the utilization of a 3,000-foot runway with approved permits to extend the length of that runway to 4,000 feet and increase the amount of hangar space to accommodate larger turboprop aircraft.

The following recommendations are made in relation to air service:

Actions:

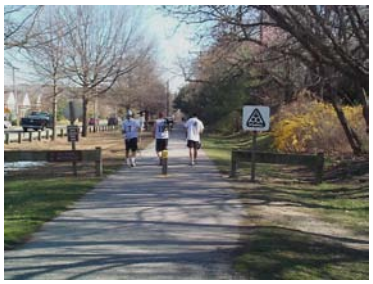
- Accessibility to airports provided by surface transportation facilities should be maintained, and as necessary, improved to protect the competitiveness of these facilities that support the County's economic development. Accessibility improvements should include transit and pedestrian/bicycle facilities as well as highway capacity increases.
- Land uses near the airports should be monitored to prevent the compromise of the operations of these necessary facilities.

Pedestrian and Bicycle Network

In 2003, the County Council adopted the *Anne Arundel County Pedestrian and Bicycle Master Plan*. Meant to encourage the integration of bicycle and pedestrian facilities into the roadway design and development review process, the ultimate goal of the Plan is to provide a safe, alternate means of mobility which offers economic, environmental, recreation/health and quality of life benefits. The Plan also promotes bicycle safety through education of both adults and children and creates an organized structure to implement bicycle and pedestrian programs and projects. The Plan strives for cohesion with other planning tools such as the *Greenways Master Plan*, the adopted Small Area Plans, the City of Annapolis Take-A-Step Map, the Maryland Statewide Greenway Atlas, and the *Maryland Statewide Bicycle and Pedestrian Plan*.

The Plan identifies corridors for pedestrian/bicycle facility location and areas where pedestrian activity should be supported through the construction of appropriate amenities such as sidewalks, street lighting, pedestrian ramps, and crosswalks. The Transportation Facilities Planning program funds design studies for pedestrian and bicycle facilities.

The County currently affords residents approximately 30 miles of existing multi-use trails including the Baltimore & Washington Trail, BWI Trail Park, Chesapeake Beach Rail Trail, South Shore Trail, Poplar Trail, Kinder Park Trail, Quiet Waters Park and Annapolis Colonial Maritime Trail. The West County WB&A Trail is adding segments as well. As a whole, opportunities for on-road bicycling are inadequate, due to a lack of striped bicycle lanes, designated bicycle routes, funding, rights-of-way and logical connections between desired origins and destinations. Topography and drainage infrastructure, high speed traffic flow and scenic/historic road designations all limit opportunities. More than one third of all travel in the County is less than two miles in length. Improving the bicycle and pedestrian network, making it safe to use and offering connections between local activity centers such as schools, shopping centers, and other public facilities can serve to reduce automobile use, promote personal mobility and offer a healthier choice to the County's residents.



A map illustrating the County's adopted Pedestrian/Bicycle Master Plan is provided in Figure 9-6. This map also displays the County's trail network.

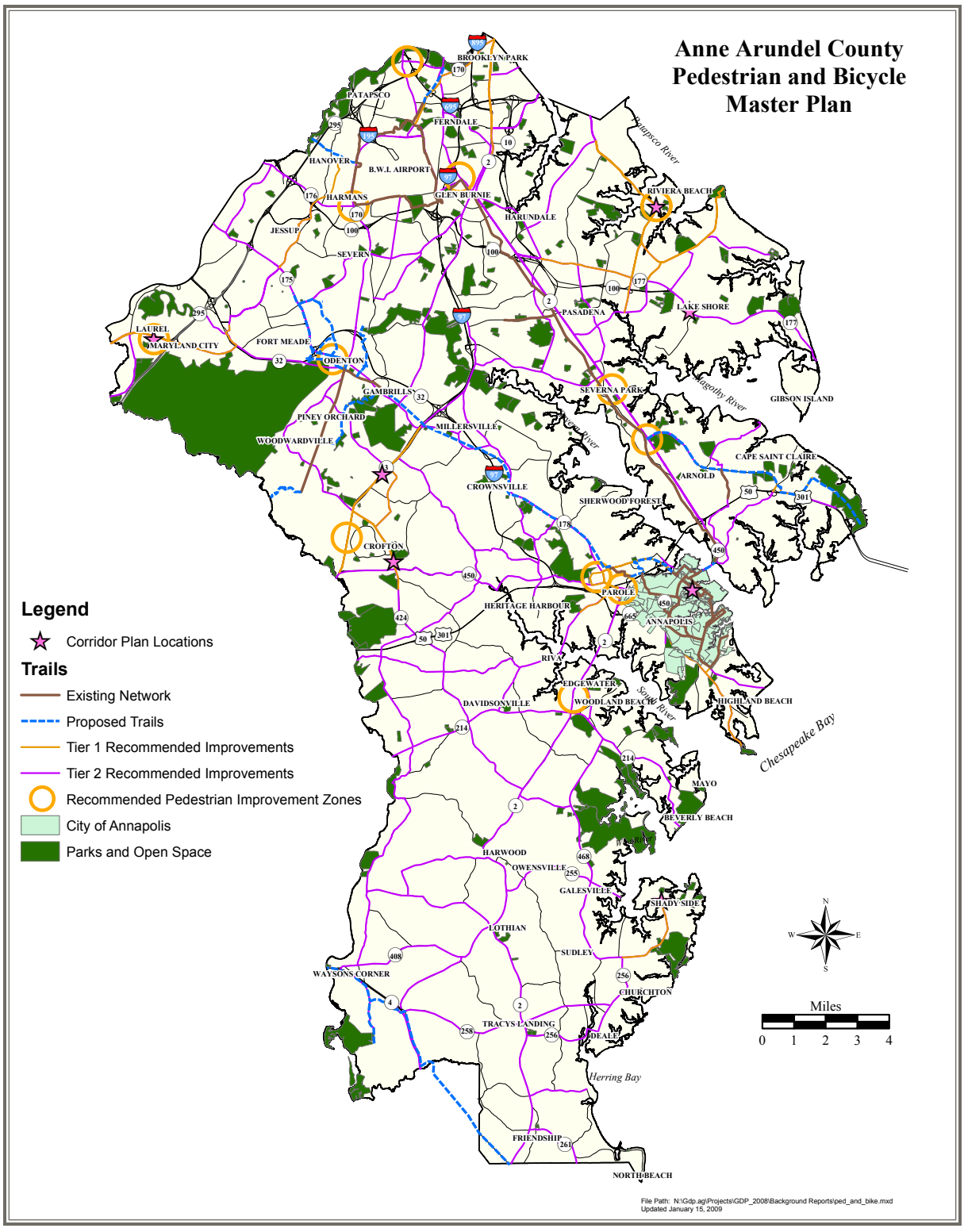
Mobile Source Air Quality

A result of the interaction among transportation (specifically fossil fuel burning vehicles), land use activities and the climate is an overall impact on the quality of the County's ambient air. Mobile source emissions (automobiles, trucks, buses, etc) amount to an ever smaller, but still significant component of oxides of nitrogen, volatile organic compounds, and particulate matter which combine to generate low-level ozone.

Anne Arundel County is a participating member of the Baltimore Regional Transportation Board (BRTB) which consists of the cities of Annapolis and Baltimore as well as Anne Arundel, Baltimore, Carroll, Harford and Howard Counties. Anne Arundel County, as a jurisdiction within the Baltimore region is considered an air quality nonattainment area. The BRTB has a Federal requirement under the Clean Air Act Amendments of 1990 and the Transportation Reauthorization legislation to ensure that federal air quality standards are maintained for federally funded transportation projects in the Baltimore region. Therefore, the federally funded transportation projects, which are identified in the Baltimore Region's Long Range Plan must meet the Federal air quality standards and demonstrate that these projects do not promote a further degradation of the Region's ambient air quality.

Anne Arundel County includes many projects that improve air quality in the Long Range Plan. Since most of the transportation projects that must be constructed in the County over the next 30 years require federal funding up to 80% of the cost, air quality conformity is very important as projects will not be funded from Federal sources without a declaration of conformity. Beyond specific federal requirements, a more aggressive pursuit of strategies is recommended to reduce emissions from mobile sources.

Figure 9–6 County Pedestrian and Bicycle Master Plan



This Plan recommends the initiation of an "awareness" program to make the employers, residents and County employees aware of Transportation Demand Management (TDM) services. Transit and ridesharing informational literature can be made available to potential, active and retired County employees as part of information they are currently receiving from the County such as paychecks. Active employees could receive information about air quality (Code Red and Code Orange Days as "popups") on their computers as well. The information could be made available to the general public at County buildings including libraries, the County's website and information that is already sent out by the county such as water bills. Public broadcasting such as the County Council meetings could also be utilized to disseminate information as appropriate.

Specific cost effective programs for County employees should be considered and implemented where they are appropriate. These could include providing priority parking spaces for carpoolers and subsidizing transit passes. Departments could implement flexible work schedules, where appropriate, similar to those that are being implemented by the private sector and County and State governments. Telecommuting (providing the option to work one or more days a week from a location other than a person's primary office) could also be implemented.

This Plan also recommends a review of the County's existing practices regarding generation of emissions. Among these practices are County equipment purchasing procedures. Priority should be given to purchasing vehicles that are fuel efficient and produce lower rates of emissions of hydrocarbons, oxides of nitrogen and particulate matter (soot). This would include all trucks, buses, utility vehicles, and generators, or any other equipment that uses fossil fuel to produce energy. It would also include information to employees about fuel conservation which also leads to reduction in emissions. These could include fueling vehicles early in the morning and not mowing grass on Code Red or Orange days.

Since mobile source emissions are related to land use patterns, this Plan also recommends reviewing existing land use codes and regulations, providing incentives for development of in-fill lots, promotion of areas designated for Transit Oriented Development, establishment of maximum number of parking spaces in areas served by transit, and implementation of transit service and pedestrian connection improvements to help mitigate development-generated vehicle trips, where feasible.

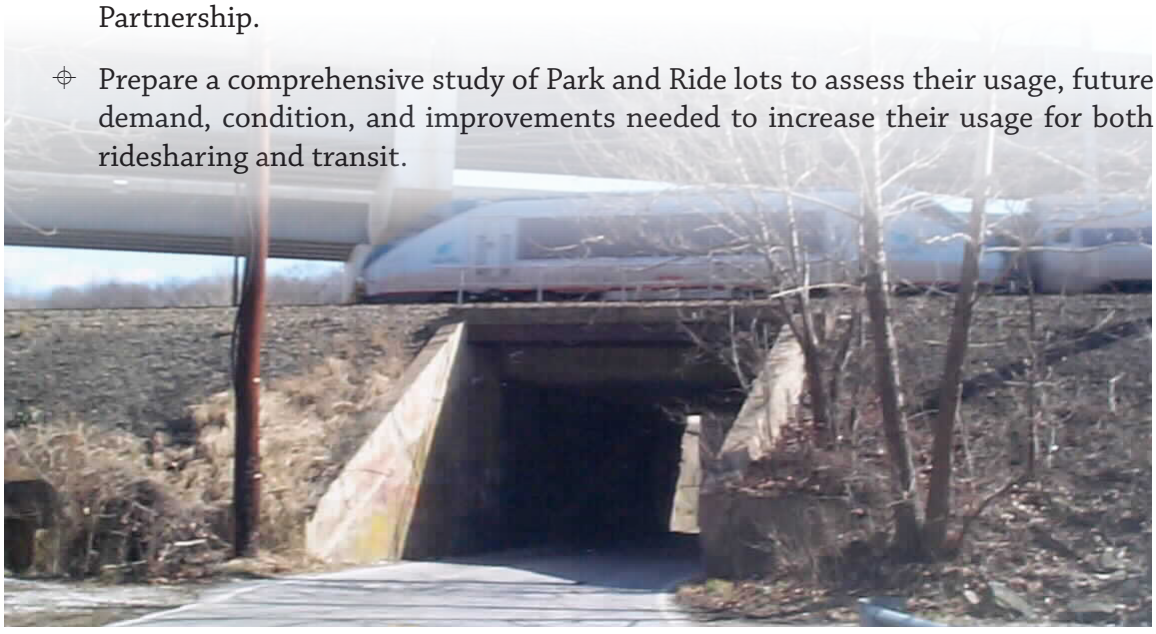
The County should also identify larger private sector employers (over 100 full time employees) and work with them to implement TDM programs through ARTMA and BWI Business Partnership. They should include transit information for their employees, guidance to find ride sharing information and incentives that the company could provide to encourage the use of transit (subsidized bus passes or preferential parking near the building for carpoolers).

Finally, the Plan also recommends the preparation of a comprehensive study of the Park and Ride lots. The study would identify current usage and future demand to determine lots that need to be expanded as well as the condition of the lot to determine improvements that are necessary to increase their usage for both ridesharing and transit. These could include such things as sidewalks, bike racks, benches, lighting and shelters. Information could also be obtained as to the potential location of new facilities.

In summary, the Plan makes the following recommendations related to mobile source air quality:

Actions:

- Initiate an "awareness" program to make the employers, residents and County employees aware of Transportation Demand Management (TDM) services.
- Consider and implement specific cost effective programs for County employees where they are appropriate, such as priority parking spaces for carpoolers, subsidizing transit passes, flexible work schedules, and telecommuting.
- Review the County's existing practices regarding generation of emissions and adopt strategies to reduce emissions. These should include purchasing vehicles that are fuel efficient and produce lower rates of emissions, and providing information to employees about fuel conservation.
- Review existing land use codes and regulations and provide incentives for development that reduces the number of vehicle trips, where feasible.
- Identify larger private sector employers (over 100 full time employees) and work with them to implement TDM programs through ARTMA and BWI Business Partnership.
- Prepare a comprehensive study of Park and Ride lots to assess their usage, future demand, condition, and improvements needed to increase their usage for both ridesharing and transit.



Plan Recommendations

Jobs, mobility, and economic prosperity are the kind of benefits that we typically attribute to a good transportation system. While considerable attention has been focused on environmental impacts that may result from transportation, little has been said about the multitude of environmental and societal benefits that do result from transportation. These benefits include a system that is designed to be compatible with its adjacent land uses and activities; a system which offers mobility options (automobile, rideshare and van pool, bus and rail transit, biking and walking); and a system that promotes both economic and physical vitality. Planning, monitoring and improving that system promotes this outcome. However, the opposite course of action where travel demand exceeds available capacity and there are little or no other options beyond an overburdened highway network can jeopardize these benefits.

The Transportation Plan proposes recommendations that can be implemented to balance mobility with accessibility, safety, environmental impact and cost to construct and operate trails, roads, and transit.

Transportation Functional Master Plan

The embodiment of the recommendations found in this Plan will be evaluated in greater detail through the preparation of a Transportation Functional Master Plan (TFMP). Among the issues to be addressed in greater detail in the TFMP are the following:

- Relationship to land use in the County: The County's and the Region's land use patterns and activities generate both the desire for mobility and the need for accessibility leading to conflict and the requirement to establish a hierarchy. The impact of this process on transportation facilities and land use patterns must be evaluated in a comprehensive fashion.
- Relationship to land use and activity centers in the Region: The Baltimore and Washington regions have multiple activity centers (residential, commercial, governmental, transportation, etc). They generate travel through, into and out of the County. Total travel demand within the County must account for these locations and must consider their impact on the overall County surface transportation network.
- Revised forecasts County wide: Changes in land use both within and in the vicinity of the County will result in changes in travel demand and must be considered when making recommendations about functional classification of facilities as well as numbers of highway lanes or type of transit.
- Enhanced forecasts per corridor: This same effort must be included in evaluation of travel demand within corridors of the County. Physical changes in each of these

corridors can result in changes in travel demand along parallel or perpendicular corridors and should be not studied separately.

- Priority Highway Improvement Corridors Program (PHIC): The TFMP will initiate studies by highway corridor preparing detailed recommendations using the known tool box of potential improvements ranging from additional travel lanes, access control and/or management, system signalization, transit, pedestrian/bicycle connections, and potentially zoning and land use design overlays.
- Transit Investment Corridors (TIC): Provision of improved or initial transit needs to be part of any overall transportation plan. Adjacent land uses both in terms of density and activities, right-of-way availability, connectivity to other transit facilities, and land side supporting infrastructure must all be considered and evaluated in a larger Countywide context and in far greater detail than would be possible in a policy-level plan.
- Coordination and Promotion of Improved Transit Services: As noted earlier in this Plan, transit services in the County are provided by State, County, municipal and private sector sources. Better coordination of these services, coupled with improvements along the Transit Investment Corridors, will be necessary to implement improved services throughout the County and provide better connections to regional activity enters in both the Washington and Baltimore areas.
- Coordination with Emergency Planning: The Office of Emergency Management is responsible for coordinating emergency transportation resources and facilitating evacuations within the County. The placement of road shoulders, median crossovers, and other emergency road usage options should be addressed with OEM in the planning stages.
- Changes to Facility Design (sidewalks, on-road biking, multipurpose trails): While a policy plan can offer recommendations about the need to change facility design to meet current needs, that plan cannot examine the impact of these changes comprehensively and in a fashion needed to alter current Design Manual standards. Changes to facility design for roadways including a documented need for sidewalks, on-road bicycle space, and multipurpose trails are necessary to meet assumed land uses, activities and densities as recommended in the Plan.
- Changes in timing of dedication / reservation: Combined public costs associated with right-of-way acquisition for all transportation facilities (highways, fixed guideway transit, dedicated bus transit lanes, sidewalks, multipurpose trails, etc) continue to mount as the County's current policy of reservation requirements are only extended to projects with identified construction funding. By linking travel demand, facility type, number of lanes and added appurtenances to the Design Manual, the TFMP will help to identify longer term right-of-way needs and make informed recommendations about land requirements.
- Context Sensitive Design: Construction and reconstruction of transportation facilities must occur to support adjacent land use activities. Town Centers and revitalization areas should not be divided by suburban style roadways, but should be drawn together by facilities that support those land uses. Roadways must be

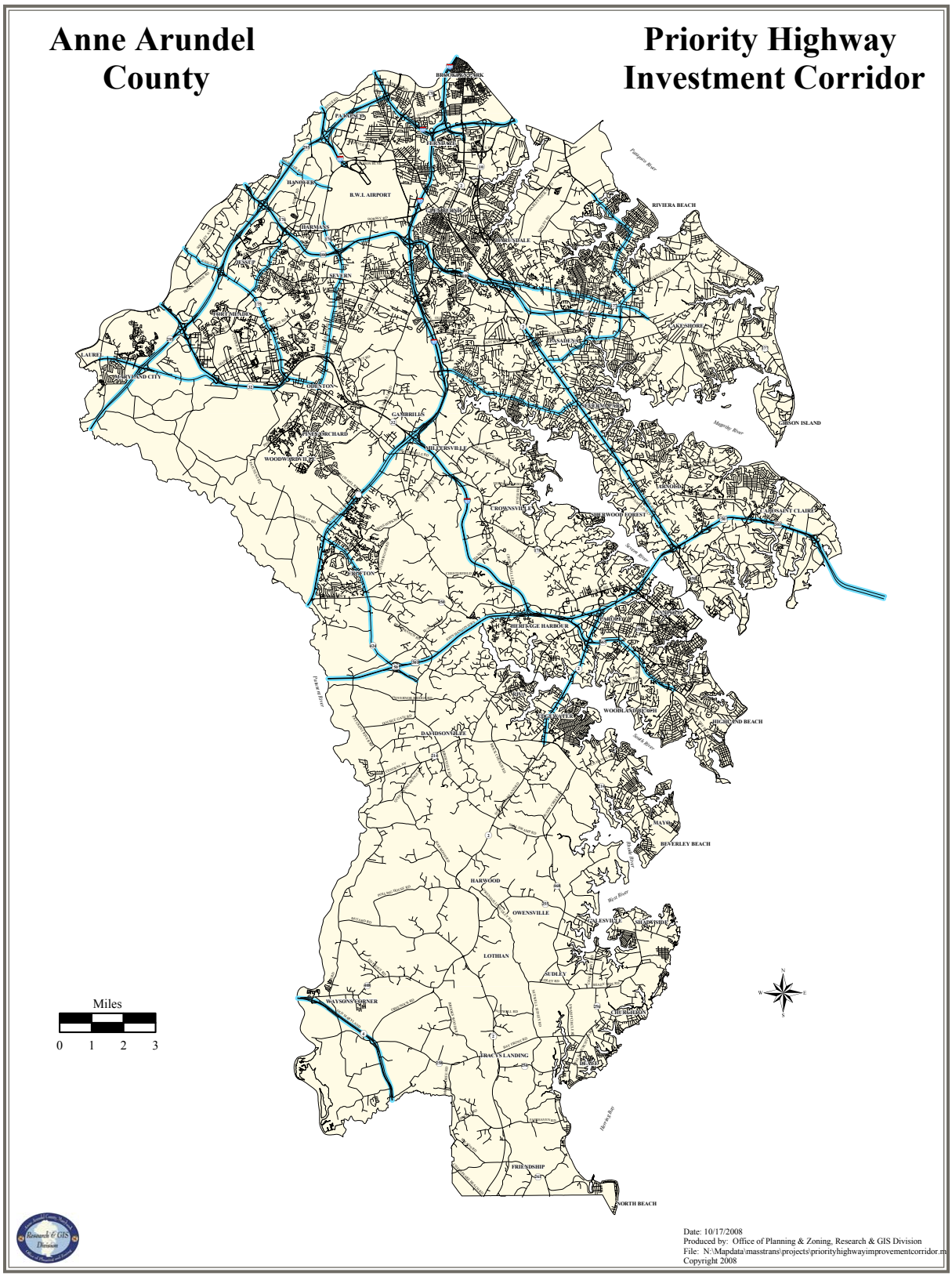
designed to accommodate all parties using that right-of-way including motorists, bicyclists, pedestrians, and transit riders, regardless of their age and skill.

- Motorist, Bicyclist, and Pedestrian Safety: Currently the County ranks between third and fifth among Maryland's counties for various categories of fatalities and severe accidents caused by various actions. While this is fairly consistent with total annual vehicle miles traveled, it is far too high based on the County's population. Comprehensive evaluation of crash locations, and examination of the motorist and pedestrian policies which could lead to reductions in crashes and incidents will be included in the TFMP.
- Parking structures and Park & Ride Facilities: Car pooling and transit usage are identified at the policy level as strategies to reduce congestion, conserve fossil fuels, and promote a cleaner environment. The extent of land used to support parking needs to be evaluated on a Countywide basis. As the County's Transit Oriented Development Program advances and areas of the County experience economic revitalization, provision of parking must be evaluated as well. Areas where parking facilities are necessary to promote these goals must be identified and preserved in a rational fashion based on informed recommendations.
- Input to Capital Improvement Program: The GDP Background Report on Transportation demonstrated a need to improve facilities to meet future travel demand. The PHIC and TIC elements of the TFMP will provide detailed recommendations for improvements to both State and County facilities. The TFMP will provide an informed process to identify projects to be included in the County's Capital Improvement Program as well as the MDOT Construction Priority Letter.
- Sources of Funding: Cost to plan, design, acquire right-of-way and construct projects will require a fundamental change in how projects are presently funded. Among the obvious sources to consider are impact fees, fees in lieu of construction, special funding districts, developer exactions, increment financing and other innovative sources of capital financing.
- Intergovernmental Coordination: The County relies on State funding, as virtually all of the major transportation facilities in the County are maintained by the State of Maryland. It must coordinate with the City of Annapolis with regard to transit service in the Parole, Arnold and Edgewater areas, as well as interjurisdictional issues with ownership of the highway network. Further, the County must also work with adjacent counties and with Federal agencies to achieve common goals. The TFMP will identify methods to improve intergovernmental coordination both within the County and with adjacent jurisdictions.

Priority Highway Improvement Corridors

The Background Report on Transportation provided tables and graphics identifying forecast future travel demand along the major facilities that comprise the County's highway network. On average, the network can accommodate much of the anticipated growth in travel demand. However, there are several segments where travel demand will exceed the hourly capacity of the facilities. In those cases, congestion (lack of mobility) is expected

Figure 9–7 Priority Highway Investment Corridors



to occur. Where the demand far exceeds the hourly capacity, the duration of this congestion will be much longer.

This Plan recommends the creation of Priority Highway Improvement Corridors (PHIC), as identified in Figure 9-7. The concept of PHIC is to apply the entire tool box of demand management, access management, transit, pedestrian safety, and geometric improvement strategies to accommodate the anticipated travel demand.
It is doubtful that a single set of strategies can be applied across the entire table of PHIC, so it is recommended that the Transportation Functional Master Plan (TFMP) address each of these corridors in a specific fashion.

In addition to preparing corridor specific recommendations in the TFMP, this Plan recommends configuring or re-configuring street patterns to improve traffic flow and turning movements in balance with safety considerations and to widen roadways only when necessary to accommodate travel demand where no other option is available.

Transportation Demand Management Strategies

Congested streets and roadways result when too many people use the same routes at the same time, particularly during peak commuter hours or special events. The term "demand" refers to the amount of street or road use during a given time period. Transportation Demand Management (TDM) programs focus on changing or reducing travel demand, particularly at peak commute hours, instead of increasing roadway supply. Thus, TDM makes more efficient use of the current roadway system. With the right incentives (or disincentives) travelers can be influenced to use transportation systems in a way that contributes less to congestion. In fact, Federal Highway Administration research around the country indicates that well-designed TDM programs can reduce vehicle trips by as much as 30 or 40%. Travelers base their travel choices on a number of important motivators including the desire to save time and money, to reduce stress or to improve convenience. At least some of these motivations must be addressed to encourage a change in habits. Some of the most promising TDM programs emphasize coordination with local employers on measures such as car or van pooling programs, bus pass subsidies, alternative work schedules, telecommuting options and parking management. Studies also indicate that congestion pricing is an especially effective approach, which should gain favor as congestion worsens and new variations on the concept are developed. The GDP identifies some strategies below.

Transportation Demand Management (TDM) programs focus on changing or reducing travel demand, particularly at peak commute hours, instead of increasing roadway supply.

Public Information about Transportation Through public workshops, neighborhood meetings, staff reports and other means, provide public information and education on local transportation conditions, behavior, issues and improvement options. Hold at least

one traffic and transportation workshop annually to update the public on conditions and proposed improvements.

Transit Information Dissemination Encourage development and distribution of transit information through printed materials, kiosks, web sites, radio and television broadcasts, and other means. Provide transit information on the County's website, at County offices open to the public and through other dissemination means. Include transit access information on County meeting notices and in notices for County-permitted events, and encourage merchants to provide transit information in their advertisements and in their places of business.

Utilizing Transportation Technology Use the most effective technologies in managing the County's roadways and congestion. For example, support timed connections at transit hubs and promote the use of transportation information systems.

Identify Transit Needs Work with transit providers to identify underserved neighborhoods and population groups and advocate for expanded service in those areas and populations.

County and Regional Support for Transportation Demand Management (TDM) Programs Identify cost-effective Anne Arundel County TDM programs for County employees. Serve as a resource to employers wishing to implement TDM by providing information through printed materials, workshops and other means. Encourage smaller employers to "pool" resources to create effective TDM programs. Support regional efforts to work with employers to provide TDM programs.

County Survey of Transit Needs In County-sponsored surveys of residents, seek transit satisfaction levels when appropriate and feasible.

Intelligent Transportation Systems (ITS) Intelligent Transportation Systems are part of the national strategy for improving the operational safety, efficiency, and security of our nation's highways. Since the early 1990s, ITS has been the umbrella under which significant efforts have been conducted in research, development, testing, deployment, and integration of advanced technologies to improve the measures of effectiveness of our national highway network. Deployment of these technologies requires coordination with both State and municipal transportation agencies, both in terms of highway and transit operations. These measures include level of congestion, the number of accidents and fatalities, delay, throughput, access to transportation, and fuel efficiency. A transportation future that includes ITS will involve a significant improvement in these measures while remaining environmentally friendly and assuring the safety and security of the traveling public. The GDP recommends consideration of ITS application wherever possible to reduce congestion and improve information and system operation.

Other Goals, Policies, and Actions

The following goals, policies, and actions are Countywide and integrate transportation with the other elements in this Plan such as land use and environmental stewardship.

Goal: Provide a safe, efficient and affordable multimodal transportation system in Anne Arundel County.

Policy 1: Promote and encourage a transportation system that adequately and safely serves the public, minimizes negative environmental impacts, and supports the county's land use goals.

Actions:

- Prepare and adopt a Transportation Functional Master Plan (TFMP) that addresses roadway, bicycle, pedestrian, and public transportation modes, and that includes a financial plan to implement proposed improvements over the next ten years. The TFMP should include the following components: relationship to land use and activity centers in the county and the region, linkages between transportation modes, a priority highways investment corridors program, transit investment corridors, transit services, facility design, timing of highway dedication/reservation, context sensitive design, transit and highway corridor overlays, motorist and pedestrian safety, parking structures and park and ride facilities, capital improvement program, funding sources, consolidation of transit operations, connections to public facilities, emergency management and design criteria to accommodate emergency usage such as adequate road shoulder space, median cross-overs, and staging of transportation resources, and intergovernmental coordination.
- Identify the purpose and need to conduct a highway corridor study of US 50 / 301 between Prince Georges County and Queen Anne's County in cooperation with State, Federal and local transportation agencies.

Policy 2: Explore extension of transit along major transportation corridors.

Actions:

- Study feasibility of transit, including bus transit and rail transit, along corridors as identified in the GDP and TFMP.
- Identify locations for intermodal centers.
- Conduct feasibility study for the extension of light rail to other areas of the County.

- Study the feasibility of adding stations on the commuter rail line.
- Revise the Impact Fee Program to allow a portion of transportation impact fees to be dedicated for expansion or improvements to public transit.

Policy 3: Promote carpooling, vanpooling, transit programs, and improvements to park-and-ride lots.

Action:

- Conduct periodic public workshops, neighborhood meetings, staff reports, and other means to disseminate information about available programs.

Policy 4: Provide public information and education on local transportation conditions, safety behavior, issues, and improvement options.

Actions:

- Work with transit providers to identify underserved neighborhoods and population groups and evaluate them for the potential inclusion in the transit system.
- Conduct a traffic and transportation workshop annually to update the public on conditions and proposed improvements.

Policy 5: Improve the efficiency of personal travel by providing more options to reduce current dependency on automobile use.

Action:

- Encourage high occupancy vehicle (HOV) lanes, carpooling, flexible work schedules, telecommuting, subsidized transit passes, and stricter parking controls as means to reduce traffic congestion.

Policy 6: Improve transportation and utility infrastructure in the vicinity of BWI and Tipton airports.

Action:

- Improve vehicular and transit access to BWI and Tipton airports.

Policy 7: Improve coordination of transportation services in the County

Action:

- Consolidate transportation activities (highway, bridge, transit, sidewalks, demand management) into one department providing a single agency to deliver transportation services in the County.

The following goals, policies and actions will serve to encourage the integration of bicycle/pedestrian facilities into the roadway design and development review process.

Goal: Create and maintain a pedestrian and bicycle-friendly community with a convenient and efficient multi-modal system.

Policy 1: Continue implementation of the Bicycle and Pedestrian Master Plan to provide an expanded bikeway and sidewalk network and greater overall support for biking and walking.

Actions:

- Develop a program for prioritizing the maintenance of existing pedestrian facilities based on pedestrian use and connectivity as well as maintenance need, and secure funding sources for its implementation.
- Monitor progress in implementing the pedestrian-related goals and objectives of the *Bicycle and Pedestrian Master Plan* on an annual basis.

Policy 2: Ensure an interconnected community that provides multi-modal access to all neighborhoods.

Actions:

- Establish and/or maintain sidewalks, trails, context-sensitive street design, and community-oriented transit services.
- All new streets should connect, wherever possible, to existing streets as well as future potential developments.
- Provide safe corridors for pedestrians and bicycles throughout communities.
- Include transit shelters in neighborhoods and business developments along designated routes.
- Identify publicly owned properties in the vicinity of transit stations that could be used for joint public / private development.

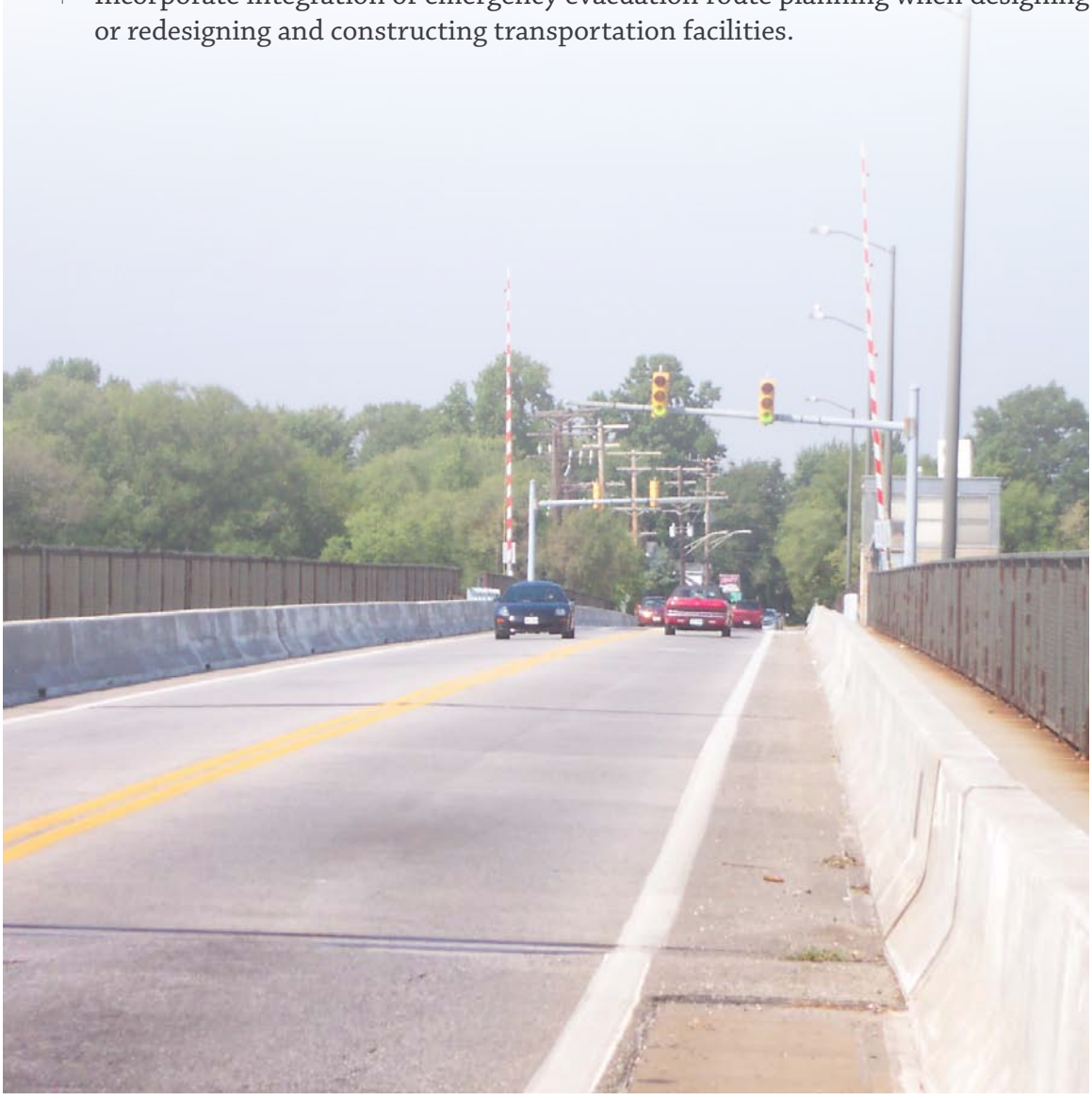
The following goal, policy, and actions encourages flexibility in design to promote compatibility with the character of the area but does not recommend any design that sacrifices pedestrian, bicyclist, or motorist safety.

Goal: Design and improve the road network to further land use, community preservation, environmental (both the natural and built environment) protection, public safety, and neighborhood compatibility goals.

Policy 1: Monitor and manage Anne Arundel County's transportation system to reduce existing traffic congestion.

Actions:

- Support efforts to configure or re-configure street patterns to improve traffic flow and turning movements in balance with safety considerations and impacts on the environment.
- Establish street design criteria to both support and eliminate conflicts between alternative transportation modes. Update road design standards for all road functional classifications.
- Seek funding for circulation and safety improvements needed and to maintain or improve traffic level of service.
- Incorporate integration of emergency evacuation route planning when designing or redesigning and constructing transportation facilities.



Chapter 10: The Water Resources Plan

Introduction

The State of Maryland has long considered protection and preservation of the Chesapeake Bay and its tributaries to be a high priority. Stewardship of the Chesapeake Bay is one of the seven core visions of the Maryland Economic Growth, Resource Protection and Planning Act of 1992 that served as a guide to current local comprehensive planning throughout the State.

In 2006, the State General Assembly adopted a new planning legislation that requires a Water Resources Element (WRE) to be incorporated into local governments' comprehensive plans by 2009. The principal purpose of the WRE is to address the relationship between planned growth and its impacts on area water resources. Specifically, the WRE must address: 1) the adequacy of the County's water supply to meet current and future needs; 2) the adequacy of the County's wastewater treatment capacity, septic supply, and stormwater management capacity to meet current and future needs; and 3) the impact that meeting these needs will have on area water resources. The flow chart in Figure 10-1 illustrates the steps required to complete the WRE analysis.

This Water Resources Plan describes the current planning framework for watershed protection and provides a summary of the County's water supply and wastewater treatment capacities, septic systems, and stormwater management capacity. The Plan also summarizes the analysis that was conducted to show the impact of nutrient loads on the watersheds for existing conditions, conditions based on the current land use plan and conditions based on the proposed land use plan. In addition, the Water Resources Plan outlines a mitigation plan that is consistent with the watershed protection goals and strategies outlined in Chapter 5 on Environmental Stewardship.

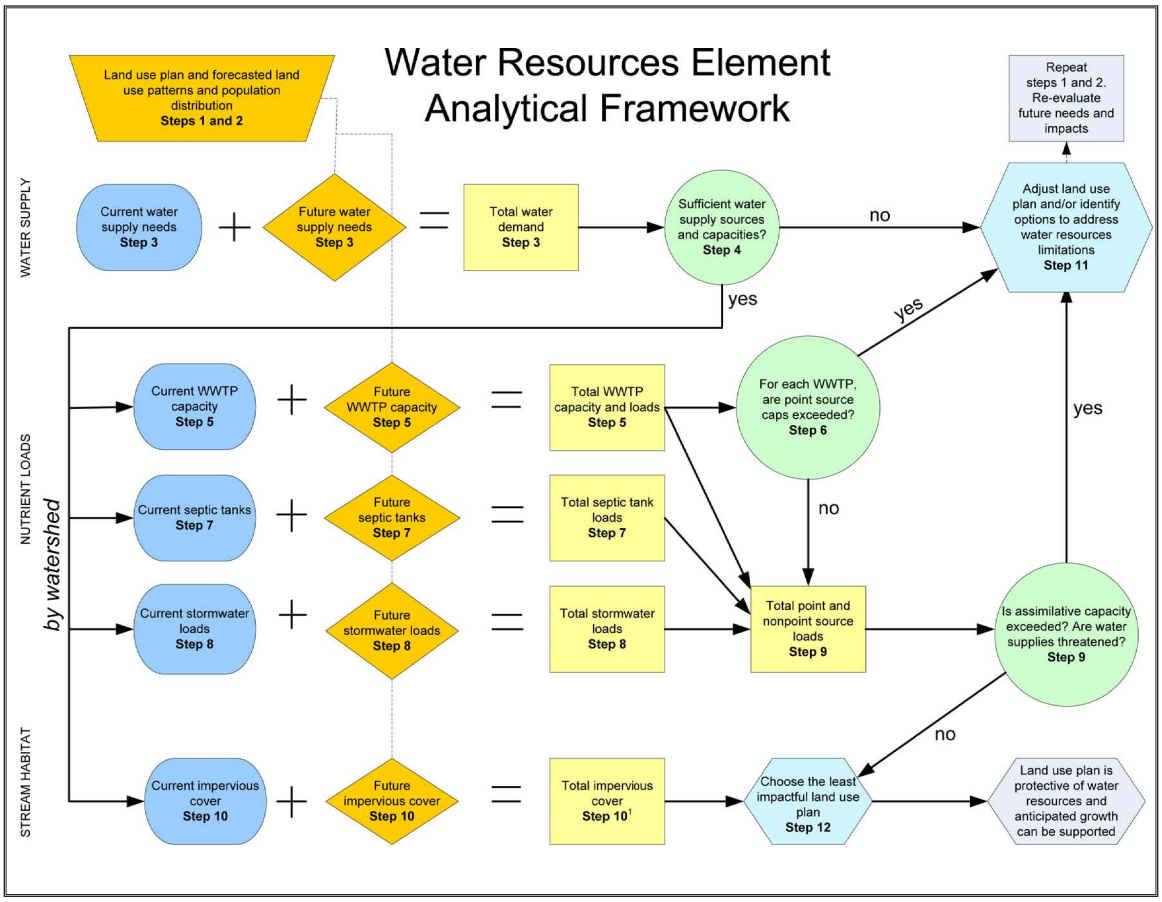
While this Plan accomplishes the milestone goal of quantifying the stormwater, septic, and wastewater treatment facility impacts and establishing the assimilative capacity criteria of all watersheds to receive pollutants from the various sources, the Water Resources Plan will continue to be developed and implemented over the coming years until it can be demonstrated that the pollutant loading associated with ultimate build out conditions meets the regulatory water quality standards.

Planning Framework for Watershed Protection

Over the last twenty years, the County has made strides in watershed protection through various plans, programs, and regulations that are in place to comprehensively approach the solution to water quality impairments. These include: the General Development Plan, the Water and Sewer Master Plan, Stormwater regulations, Subdivision regulations, Watershed Management Plans, Erosion and Sediment Control Program, Enhanced Nutrient Removal at Water Reclamation Facilities, Agricultural and Woodland Preservation Programs, Greenways Master Plan, Chesapeake Bay Critical Area Program, Wetland and Floodplain Management regulations, In-Stream & Biological Monitoring Program, Wellhead Protection Program, Wastewater Industrial / Commercial Pretreatment Program,

the Capital Improvement Program, Onsite Sewage Disposal Systems study and implementation plan, and participation on Maryland's Tributary Strategy Teams.

Figure 10–1 Water Resource Element Analytical Framework



General Development Plan

The *1997 General Development Plan* recognized the threat to water quality from overflow of pumping stations, failing septic systems, untreated thermal runoff from roads and other impervious surfaces, and other contaminates into creeks and rivers. Several key goals and recommendations were adopted to lessen the threat of pollution and improve water quality conditions. The County's *2009 General Development Plan* carries these goals forward and formulates sound policies for watershed protection. Additional strategies for enhanced protection or restoration, as well as incentives to promote conservation are also provided.

Water and Sewer Master Plan

The Anne Arundel County *Water and Sewer Master Plan* includes goals, objectives, policies, and procedures as well as background information, descriptions of facilities and service areas, population and flow projections, strategies for facility optimization, and policies

to address problem areas in both water supply and sewerage systems. The most recent update to the Water and Sewer Master Plan was completed in 2007 and reflects the land use policies of the *1997 General Development Plan*, the 16 Small Area Plans, the Town Center Plans and related planning policies that focus on protection of water resources.

Stormwater Regulations

Regulations requiring stormwater management implementation are linked with land development and other land disturbing activities. The County's stormwater management requirements are within the County Code and are implemented through the County's *Stormwater Practices and Procedures Manual*, which is a comprehensive tool that provides specific design requirements; procedures and documentation requirements for stormwater management plan submission, and requirements for stormwater management facility maintenance and inspection. The manual currently encourages environmentally sensitive design (ESD) and infiltration of runoff rather than collection and conveyance to a downstream pond or stream. The County Code and the *Stormwater Practices and Procedures Manual* will be updated accordingly to meet the new requirements of the State's 2007 Stormwater Management Act, which now requires that ESD be implemented through the use of nonstructural best management practices and other better site design techniques.

Septic System Strategic Plan

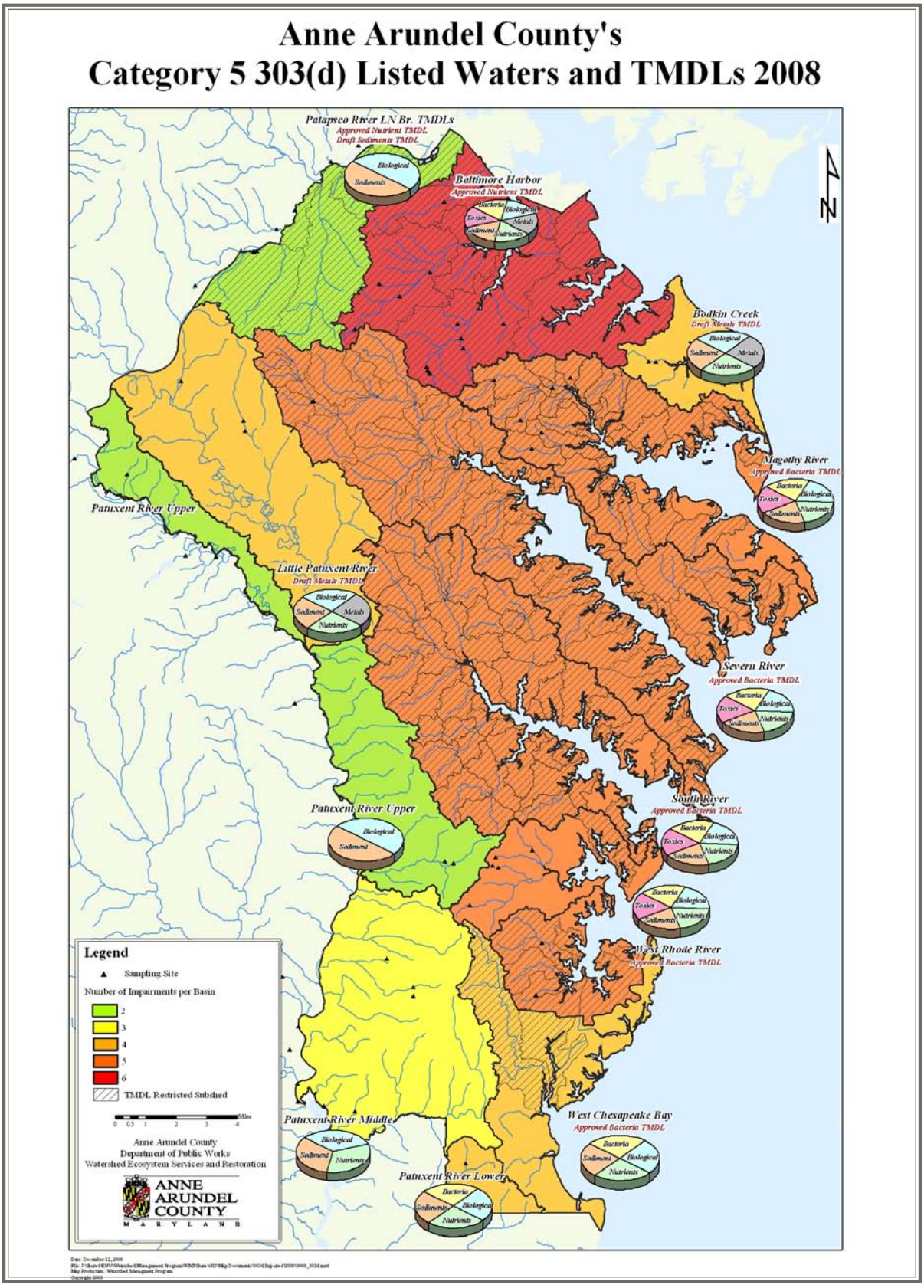
An On-Site Sewage Disposal System Evaluation Study and Strategic Plan was completed in early 2008 that provided a Countywide evaluation of the service options available for properties with onsite sewage disposal systems (OSDS, or septic systems). It focused on the most cost-effective approach to reducing nitrogen loads from septic systems. In addition, management areas were defined and evaluated to determine the effectiveness of four treatment approaches: sewer system extensions, cluster wastewater treatment facilities, upgrade individual OSDS to an enhanced OSDS, and no near-term action, which consists of low-density, low-nitrogen delivery onsite systems. More details about this study are found in Chapter 10 and the Background Report on Water Resources.

Total Maximum Daily Loads

Each of Anne Arundel County's twelve watersheds is listed for two or more water quality impairments (Figure 10-2). The State of Maryland has been involved in an on-going process of developing and promulgating specific Total Maximum Daily Loads (TMDL's), which are the maximum amount of a pollutant that a waterbody can absorb and still meet water quality standards. The TMDL's represent mandatory standards for site-specific water quality goals.

The State has issued a nutrient TMDL for the Baltimore Harbor (Patapsco Tidal and Patapsco Nontidal watersheds) and bacteria TMDLs for the Magothy, Severn, South, West

Figure 10–2 Category 5 303 (d) Listed Waters and TMDLs



and West Chesapeake Bay (Herring Bay) Watersheds. Anne Arundel County was allocated 159,318 lbs/year of total Nitrogen and 17,244 lbs/year of total Phosphorous from urban stormwater sources within the Patapsco Tidal and Non Tidal watersheds. These levels are exceeded by the current and future land use projected pollutant loading levels by more than 70%. In addition, the State has issued notice of development of a sediment TMDL for the Patapsco Non Tidal watershed. The Water Resource Element planning framework requires the County to develop implementation plans to mitigate for impacts created by implementation of the Land Use Plan. The County's Watershed Management Plans, discussed below, will provide the background information and technical support needed to prepare these implementation plans.

State Antidegradation Policy and Tier II Waters

Maryland's water quality standards consist of three components that, together, set goals to protect the State's water quality. The components are:

1) Designated Uses for each water body (e.g., recreational use, potable water supply);

2) Criteria that set minimum conditions to support the designated use (e.g., dissolved oxygen concentration not less than 5 mg/l at any time); and

3) Antidegradation Policy that recognizes three tiers of water quality and establishes a way to maintain high quality waters such that they are not allowed to degrade to meet only the minimum criteria for their designated use.

The regulatory intent of Maryland's Antidegradation Policy is to protect the existing designated uses, and the water quality necessary to support those uses, by providing a means for assessing activities that may lower the quality of the State's high quality waters. For purposes of implementing this policy, waters of the State are categorized into one of three tiers based on their assessed water quality and biological conditions. Tier I waters are those that meet the minimum criteria to support their designated uses. Tier II "high quality" waters are those water bodies where existing conditions are better than the minimum required for their designated use. Tier III Outstanding National Resource Waters (ONRWs) are those water bodies of exceptional quality, where the most stringent protection is both necessary and appropriate to protect and maintain the resource.

Anne Arundel County contains three Tier II stream segments. Two are located on Lyons Creek in the southern portion of the County, along the Calvert County line. A third stream segment was designated as Tier II in 2009 and is located on the Patuxent River west of Crofton, along the Prince George's County line. These stream segments are designated High Quality Tier II waters due to exceptional aquatic biological community conditions (fish and aquatic benthic macroinvertebrates) in the stream.

New or proposed amendments to water and sewer plans, and new discharge permits or proposed changes to existing permits trigger an antidegradation review to assure consistency with antidegradation requirements. Specifically, COMAR 26.08.02.04-1B states that "An applicant for proposed amendments to County plans or discharge permits for discharge to Tier II waters that will result in a new, or an increased, annual discharge of pollutants and a potential impact to water quality, shall evaluate alternatives to eliminate or reduce discharges or impacts. If impacts are unavoidable, an applicant shall prepare and document a social and economic justification. The Department shall determine, through a public process, whether these discharges can be justified." It should be noted that a Tier II Antidegradation Review does not apply to individual discharges of treated sanitary wastewater of less than 5000 gallons per day, if all of the existing and current designated uses continue to be met.

Ultimately, the existing Tier II instream designated water uses, and the level of water quality necessary to protect those uses, must be maintained and protected. MDE may deny any proposed discharge or plan amendment if the existing uses will not be maintained and protected.

The Lyons Creek and Patuxent River Tier II stream segments abut County lands that are designated as either Rural Area or as Natural Features. The GDP and Land Use Plan do not contain any proposals that would result in increased pollutant loads or water quality impacts to these stream segments.

Watershed Management Plans

As recommended in the *1997 General Development Plan*, the County is in the process of preparing Comprehensive Watershed Management Plans for each of the 12 watersheds (Figure 5) that will provide technical support for the development, implementation, management, and refinement of the programs listed above. They also provide a holistic and systematic watershed perspective to land use planning and development review activities. These Plans, which are developed on a community watershed scale, include the characterization of watershed baseline conditions and resources, while identifying existing and potential concerns, along with short- and long-term opportunities for improvement of water quality issues. Analysis of the baseline conditions and resources identified in the Plan provides for an informed basis for prioritizing watershed restoration and preservation initiatives. Through the characterization and analysis of a watershed area, the plans provide recommendations necessary to facilitate daily land use and infrastructure decisions to protect watershed resources. The watershed management plans integrate and link existing watershed management business processes with watershed models and geographic information systems to provide

interactive information on how changes in land use, zoning, subdivision regulations, best management practices, and other watershed conditions affect water quality and living resource habitat. To date, the County has completed watershed management plans for the Severn River, South River, and Upper Patuxent River watersheds. A fourth watershed management plan is in progress for the Magothy River watershed and is expected to be completed in 2009. The Patapsco Non-Tidal watershed management plan is expected to be completed in 2010, and management plans for the remaining seven watersheds will be scheduled over the next few years.

With the preparation of the Severn River Watershed Management Plan, a Watershed Management Tool for the County was developed that helps assess the data, prioritize where to focus restoration and preservation investment, and with selection of the most appropriate alternative solutions or best management practices. This information also allows assessment of current land use plans and policies relative to watershed impacts. The assessment of these existing policies can be modeled to predict future watershed water quality conditions more favorable to meeting defined water quality standards.

By simulating storm water run-off water quality, soil erosion from the land surface, flooding and changes in flow regime, groundwater and surface water interactions (watershed water budget), and stream habitat quality, environmental impacts of land use changes can be analyzed using the watershed modeling tool. In addition, the tool allows simulation of point and non-point source pollutant loads; fate and transport of pollutants on land and in the waterbody; and the role of time and spatial scale.

The watershed modeling results can be used to examine "future conditions" of the watershed in categories such as pollutant loading; flooding of road crossings; stream erosion potential; and hydrology of streams and groundwater. The watershed models can also be used to evaluate the pollutant loading levels associated with scenario policy considerations such as cluster zoning or septic system retrofit alternatives. Future conditions can be modeled for these policy considerations and the conditions compared to traditional community development.

Stream and Subwatershed Assessment and Ranking

The County has begun the task of a Countywide prioritization of its subwatersheds and stream reaches to determine which are most in need of restoration or protection.

Prioritization of the stream reaches and subwatersheds are based on a set of physical, chemical, and biological indicators that are assigned a weight and then combined for an overall rating for prioritization. To date, stream reach and subwatershed preservation

assessments have been completed for the Severn, South, and Upper Patuxent watersheds. The remaining watersheds are on schedule to be completed with the watershed management plans. The two charts in Figures 10-3 and 10-4 below illustrate the indicators and their assigned weighting factors that were used in this analysis. In addition, figures 10-5 and 10-6 illustrate the priority ranking of the subwatersheds for purposes of restoration and preservation, respectively.

Figure 10–3 Indicators Used in Ranking Subwatersheds for Restoration

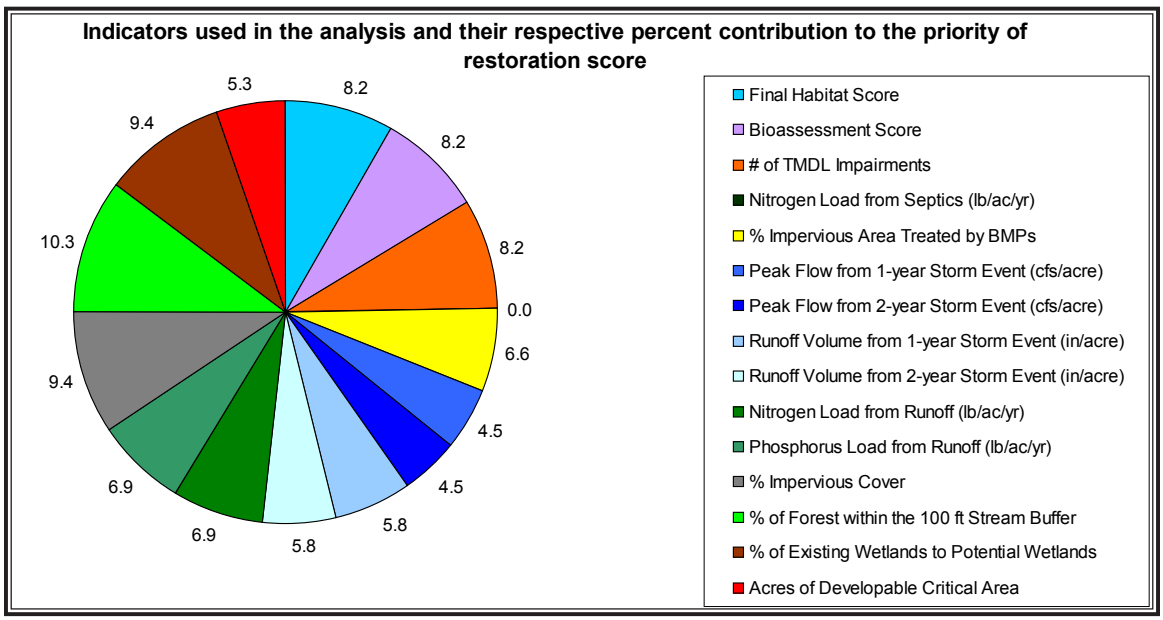


Figure 10–4 Indicators Used in Ranking Subwatersheds for Preservation

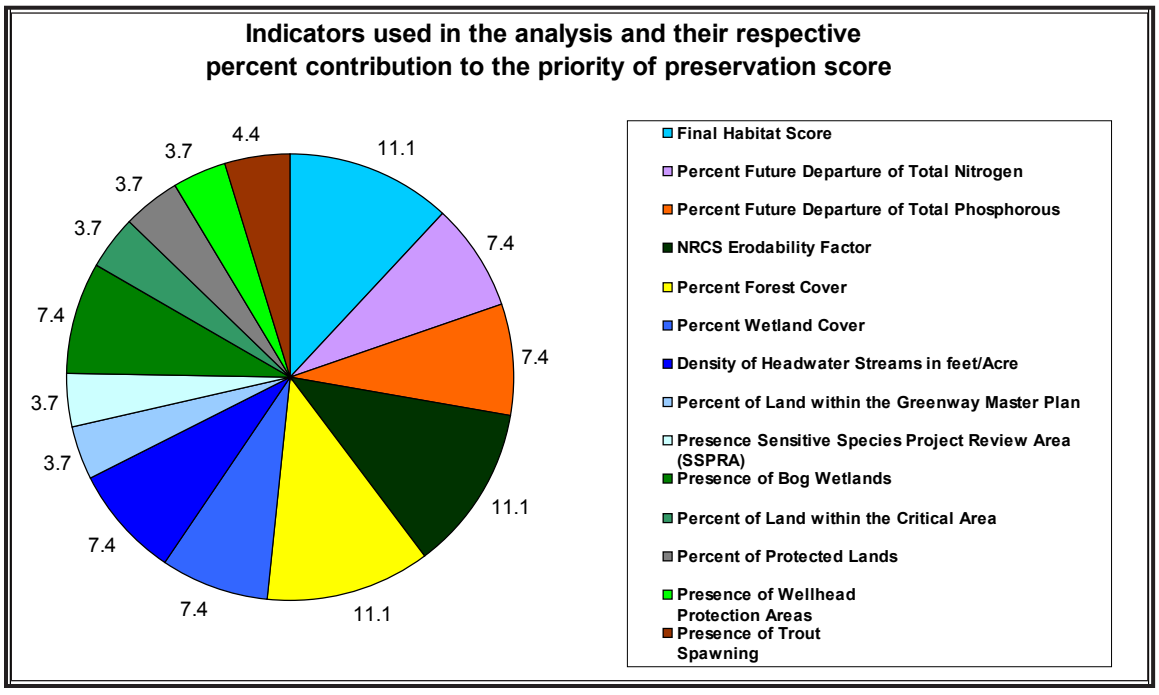


Figure 10–5 Condition of Subwatersheds for Restoration

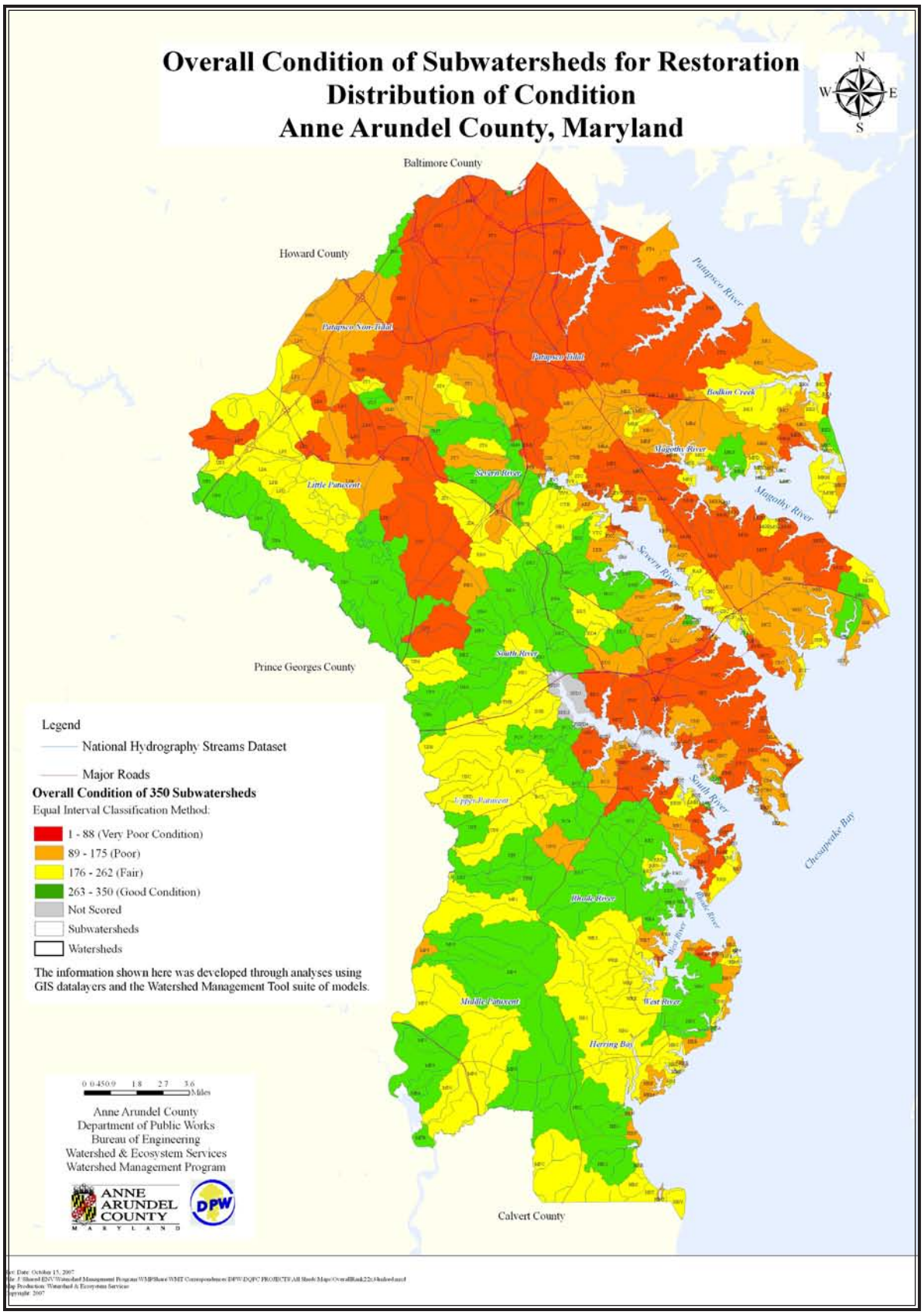
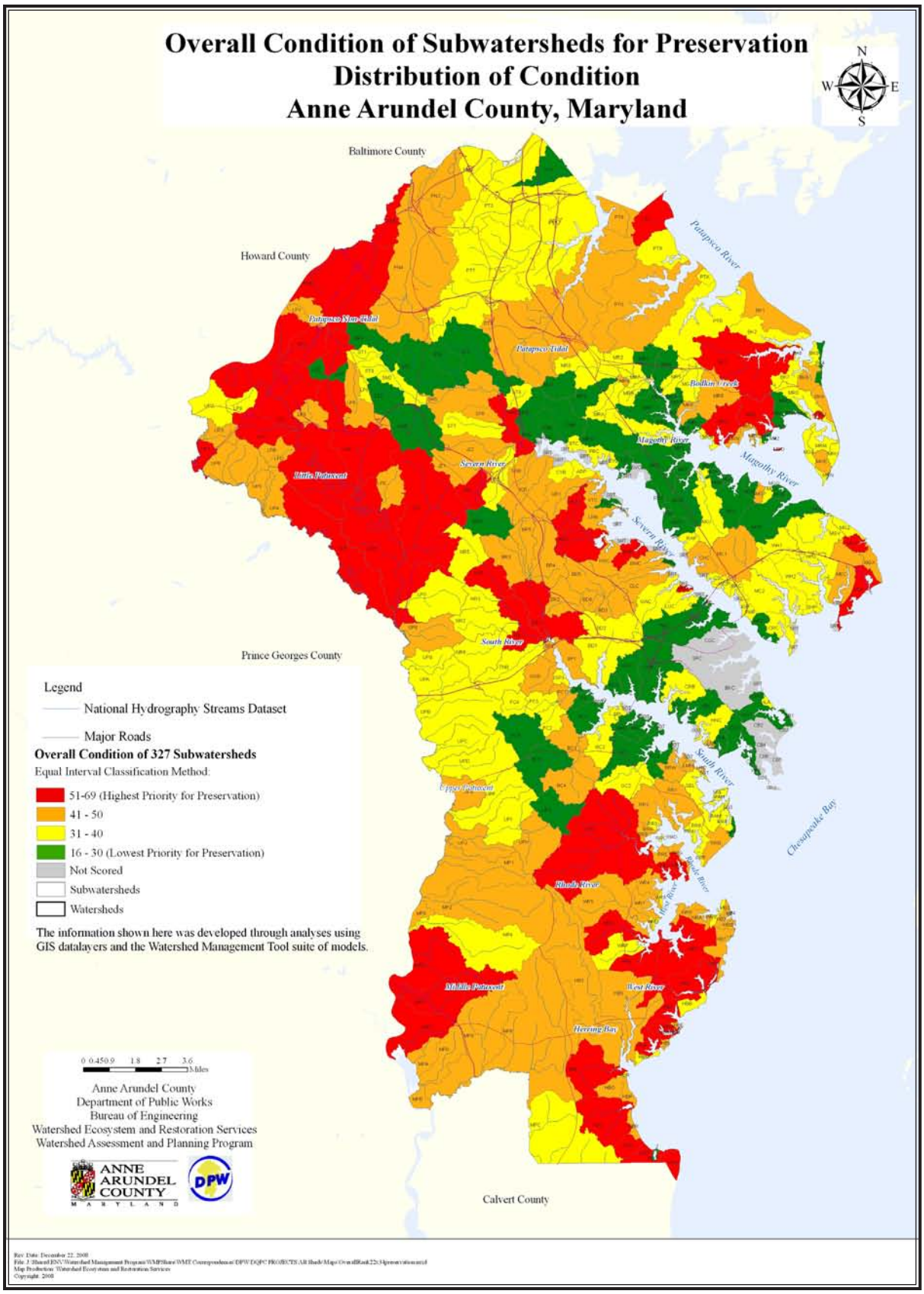


Figure 10–6 Condition of Subwatersheds for Preservation



Targeted Nutrient Reduction Implementation Plans

The County utilized the data repository and modeling components within the Watershed Management Tool to evaluate the current, future, and restoration/preservation land use plan scenarios. The degree of impact that proposed development will have on watershed conditions such as pollutant loads and stream flows were modeled and evaluation criteria were set to allow restoration and preservation scenarios to be compared economically on the basis of cost/benefit ratio. This analysis can be used to help guide expenditure decisions out of the County's limited environmental Capital Improvement Program (CIP) fund.

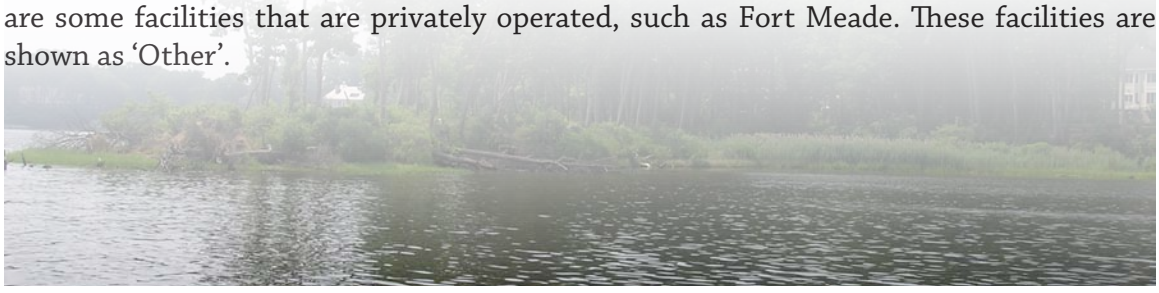
This targeted nutrient reduction strategy has been included in the overall watershed management program. Evaluations have been conducted for the Severn River, South River, Upper Patuxent River, and the Patapsco Non Tidal and Tidal Watersheds. Efforts are underway to develop implementation plans for the remaining watersheds within the County in accordance with the Comprehensive Watershed Study Master Planning schedule.

Assessment of Water Supply Capacity

Most of the existing water supply for Anne Arundel County comes from groundwater supplied by the confined Patuxent, Patapsco, Magothy and Aquia aquifers; however, some of the water that serves residents in the North County area is purchased from Baltimore City and comes from surface water sources.

The City of Annapolis owns and operates its own water supply system and uses groundwater from the Magothy and Patapsco aquifers. In addition, Fort Meade has its own private water system that includes six groundwater wells. The Fort Meade system's primary source of water is the surface water from the Little Patuxent River, which provides approximately 80% of the water used. The remaining 20% is provided by groundwater pumped from the six wells.

The Rural service area utilizes individual private wells and receives water primarily from the Aquia aquifer. Figure 10-7 is a map that shows water service within the County. The areas that are depicted as 'Existing', 'Existing – City of Annapolis', 'Capital Facilities', 'Planned' and 'Future' comprise the ultimate area planned to be served by public water. The area of the County shown as 'No Public Service' is to be served by private wells. There are some facilities that are privately operated, such as Fort Meade. These facilities are shown as 'Other'.



Groundwater Supply, Demand, and Capacity

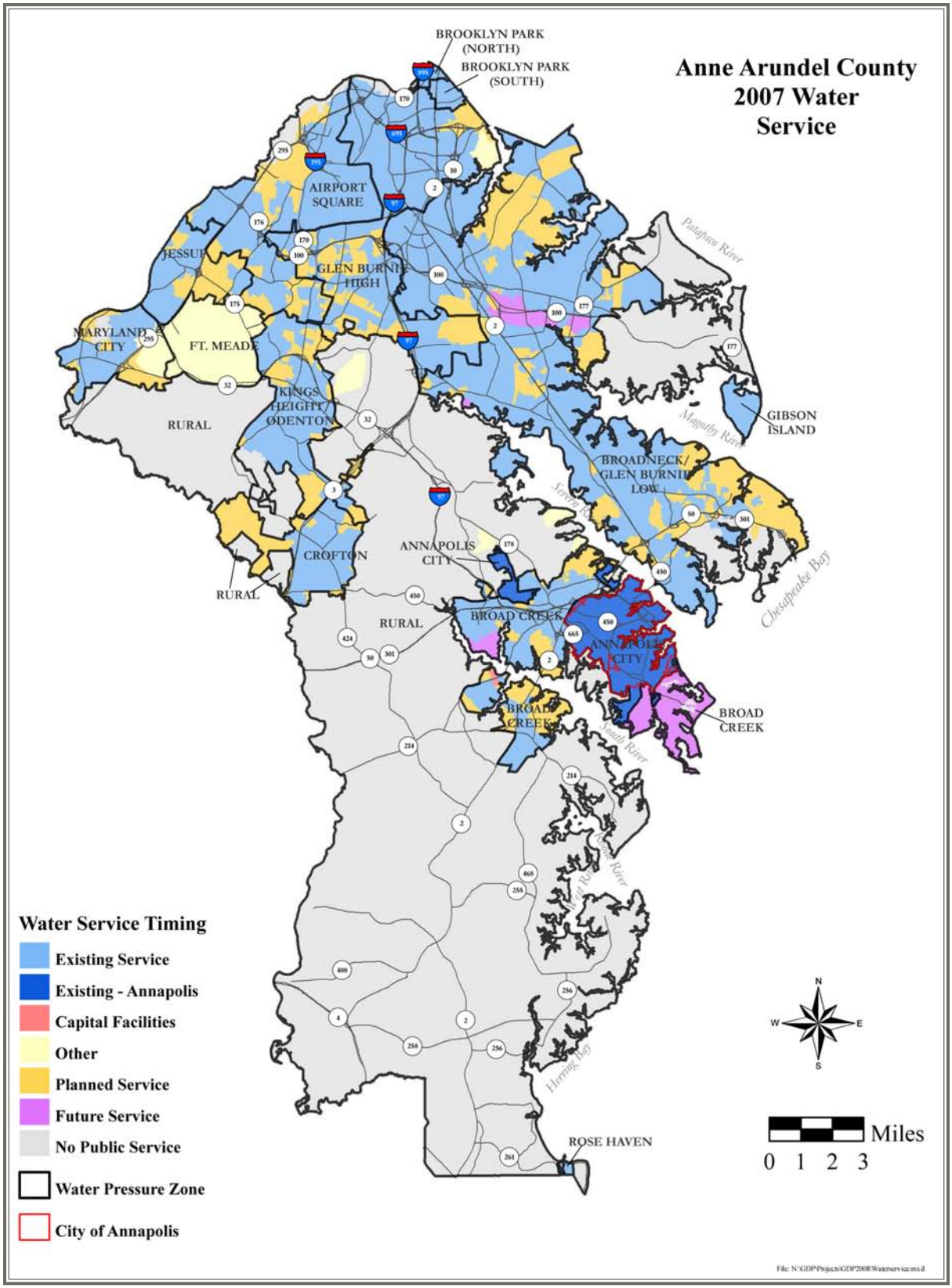
Although the groundwater supply is not as vulnerable to decline due to drought, water levels in all of the confined aquifers supplying the County have been declining for several decades due to population growth and thus increases in use. Continued water level declines could affect the long-term sustainability of ground-water resources, particularly in areas projected for heavy growth. There have been several studies conducted to determine the availability and quality of water supply from the County's aquifers. The most recent include: *Optimization of Groundwater Withdrawals in Anne Arundel County, Maryland, From the Upper Patapsco, Lower Patapsco and Patuxent Aquifers Projected through 2044* and *Future of Water Supply From the Aquia and Magothy Aquifers in Southern Anne Arundel County, Maryland, both conducted by the Maryland Geological Survey (MGS)*.

In 2007, *Optimization of Groundwater Withdrawals in Anne Arundel County, Maryland, From the Upper Patapsco, Lower Patapsco and Patuxent Aquifers Projected though 2044* was prepared by the MGS in cooperation with the County. This report found that in response to pumping, water levels in the County have declined. However, the study found that sufficient groundwater is available to supply the projected demand through the year 2040 at 73 MGD while supplying water to other users in Anne Arundel County and the surrounding counties at permitted levels. An increase in demand could result in water levels falling below the regulatory management levels in some areas, groundwater well operational problems, increased pumping costs and reduced stream baseflow. Meeting projected demand and minimizing impacts will require construction of new wells and well fields, redistributing withdrawals to other wells, and careful well design.

The Future of Water Supply From the Aquia and Magothy Aquifers in Southern Anne Arundel County, Maryland, conducted in 2002 by the MGS concluded that in some areas of southern Anne Arundel County, water levels are approaching or have exceeded the 80% management level due to the combination of increase in localized domestic use and large users in neighboring Calvert County. The model determined that an additional 0.8 MGD withdrawn from the Aquia and Magothy aquifers to serve a projected population of 32,750 in southern Anne Arundel County combined with regional withdrawals from other counties would cause water levels in the Aquia aquifer to decline. The Aquia could supply the projected water demand in most of the area; however, portions of southern Anne Arundel County would exceed the 80% management level. The Magothy aquifer can supply the projected increase in water demand without a significant reduction in available drawdown.

The study also concluded that if withdrawals in the Aquia and Magothy aquifers were held constant in the County and surrounding areas at the 2000 amount, water levels in the Aquia would stabilize in less than a year and in the Magothy, would stabilize in approximately 3 months. Even though there is sufficient available drawdown in a portion of the Aquia, the study stated that an increase in withdrawals will cause water levels to further exceed the management level, and therefore concluded that the Aquia aquifer

Figure 10–7 2007 Water Service



has reached its maximum allowable yield. The maximum allowable yield that the study concluded could be withdrawn from the Magothy aquifer is approximately 7 MGD.

A pilot study conducted as part of an analysis by the Advisory Committee on the Management and Protection of the State's Water Resources also revealed that a small area of southern Anne Arundel County is approaching or has exceeded the 80% management level due to localized domestic use and large users in neighboring Calvert County. Water withdrawals from major pumping centers at Chesapeake Ranch Estates, Solomon's and Lexington Park have resulted in the development of a large cone of depression.

Table 10-1 below shows the current and projected public-supply and domestic, individual well use by aquifer in the County. The data is based on appropriation permits issued by MDE and U. S. Census Bureau population data.

Table 10–1 Current and Projected Water Use in Anne Arundel County, 2000-2030 (MGD)

Aquifer	Public 2000	Domestic* 2000	Public 2020	Domestic* 2020	Public 2030	Domestic* 2030
Piney Point	0	.03	0	.03	0	.04
Aquia	0.18	7.10	0.20	8.02	0.21	8.30
Magothy	2.11	2.19	2.43	2.47	2.47	2.56
Patapsco	21.5	1.61	24.8	1.82	25.2	1.88
Patuxent	5.28		6.1		6.18	
Total for County	29.05	10.93	33.54	12.34	34.01	12.78

Source: The Advisory Committee Report on the Management and Protection of the State's Water Resources, Appendix D, May 2004.

** For Domestic Water Use, the aquifer is the Potomac Group, which includes the Patapsco and Patuxent Aquifers.*

Individual Wells

There are roughly 35,000 wells in the County serving individual homes. The Anne Arundel County Department of Health administers a Sanitary Engineering Program that is responsible for reviewing and approving properties for the installation of private wells in the County. Services provided through this program include issuing construction permits, inspecting private wells, conducting groundwater investigations, and testing private well water. The sources of water to supply these domestic systems are the Patuxent, Patapsco, Magothy, and Aquia aquifers. Some of the wells are susceptible to saltwater intrusion, elevated levels of radium and elevated levels of nitrate. Figure 10-8 shows water quality problem areas for elevated nitrate levels in Gambrills, saltwater intrusion in Annapolis Neck, and the testing region in the northern part of the County for radium. New wells in these areas must meet certain construction requirements to avoid contamination.

Public Water System

The County's public water supply system currently has 17 well fields that contain a total of 53 water supply wells and currently are permitted to produce up to 35.0 MGD

(annual average day) and 48.7 MGD (maximum day). Based on water billing records, the total 2006 annual average day demand was 31.1 MGD. The projected 2043 annual average day demand is 64.6 MGD and the maximum day demand is 123.9 MGD. Table 10-2 provides 2006 data based on billing records and the projected demand for annual average day, maximum day, and maximum day groundwater supply based on existing and future conditions. Thirteen future potential well fields have been identified and would add an additional 33.5 MGD. Wells located in the Rural area have a future maximum day withdrawal of 64.5 MGD. Considering new well construction, expansion of existing wells, demolition of older ones and including wells located in the Rural area, the total future groundwater potential is 126.4 MGD (maximum day).

Table 10–2 Water Demand and Supply By Pressure Zone

Water Pressure Zone	2006 Demand[1] (MGD)	2043 Demand Annual Average Day (MGD)	2043 Demand Maximum Day (MGD)	Maximum Day Groundwater Supply[2] (MGD)
Airport Square[3]	2.88	2.61	4.44	-
Broad Creek	2.56	6.00	15.00	22.7
Broadneck	2.67	6.44	16.10	17.1
Brooklyn Park[4]	0.60	0.89	1.51	-
Crofton	2.05	3.07	6.14	34.2
Gibson Island	0.06	0.17	0.43	0.4
Glen Burnie High	5.05	14.92	25.36	14.4
Glen Burnie Low	10.45	19.32	32.84	18.7
Herald Harbor	0.12	0.32	0.64	1.2
Jessup[5]	1.28	2.49	4.98	-
Kings Heights/Odenton	2.21	5.04	10.08	3.8
Maryland City[6]	1.18	3.20	6.40	-
Rose Haven	0.01	0.10	N/A	0.6
Total (w/out Rural)	31.1	64.6	123.9	112.9
Total (w/ Rural)				126.4

1 Year 2006 reflects actual demand data from water billing records.

2 Based on Existing and Future Conditions

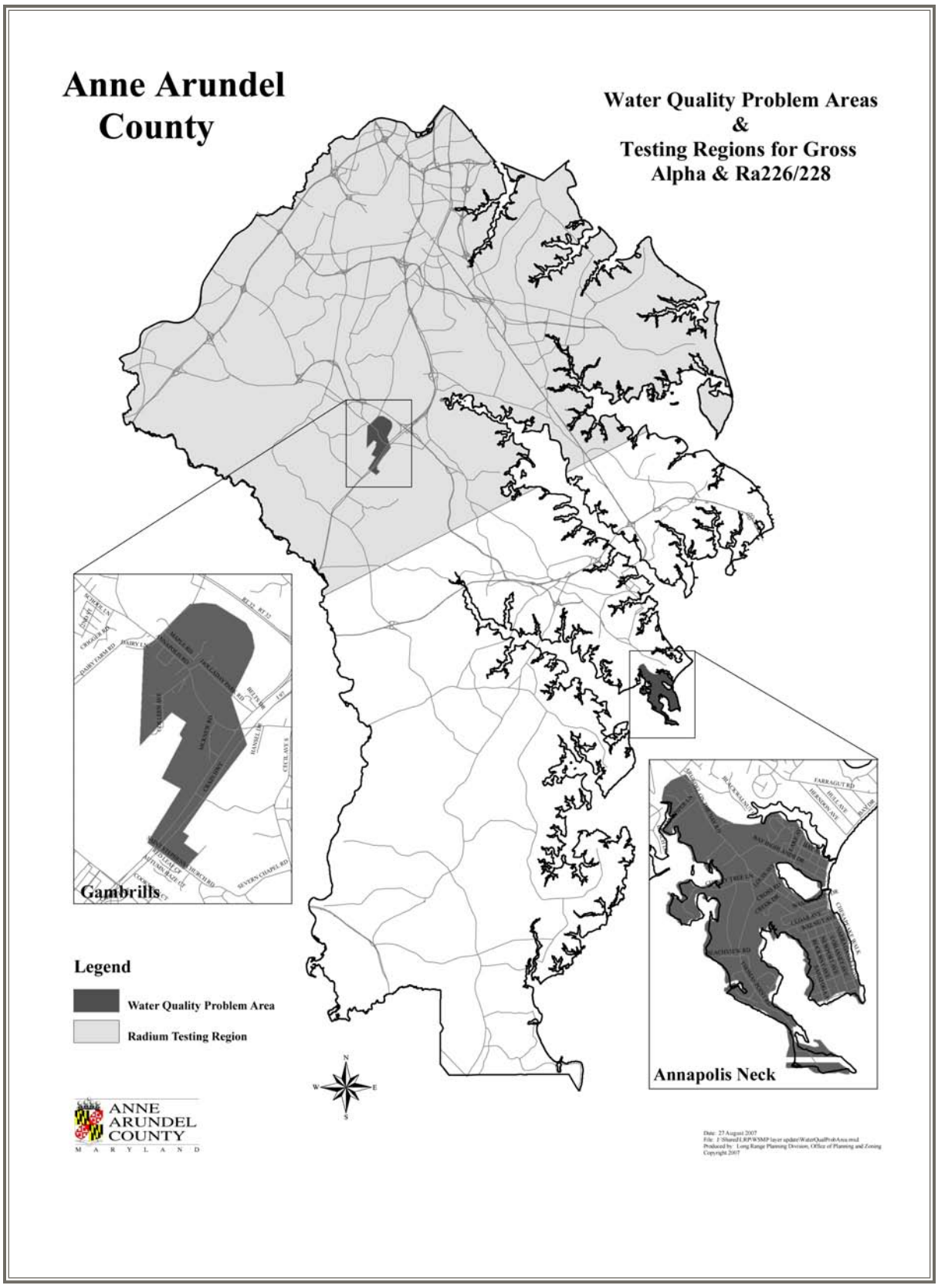
3 There are no water production capabilities. Water servicing this zone is received from the City of Baltimore and / or the Glen Burnie High Pressure Zone.

4 Water servicing this zone is received from the City of Baltimore.

5 There are no water production capabilities within this pressure zone. Water is received via the Montevideo Water Booster Pumping Station. In the future, the expanded Crofton Meadows Water Treatment Plant will also supply this zone.

6 There are no water production capabilities within this pressure zone. The two main supply sources for this pressure zone are the Baltimore City Zone and the Dorsey Road Water Treatment Plant (Glen Burnie High WPZ).In addition to the water supply wells that the County owns and operates, agreements between the County and the City of Baltimore provide the rights to purchase up to 32.5 MGD (maximum day). The County used 10.3 MGD from the Baltimore City supply in 2006 and is projected to use 19.7 MGD (annual average day) by 2043.

Figure 10–8 Water Quality Problem Areas



The *2003 Comprehensive Water Strategic Plan* identified three objectives to have the production facility infrastructure necessary for meeting the expected growth while optimizing the use of potential County groundwater resources. To meet those objectives, expansion of existing facilities and development of new facilities are proposed. The objectives include:

- Centralize facilities when possible,
- Create flexibility whereby water could be transmitted across pressure zones, and
- Reduce reliance on the City of Baltimore.

The County *2003 Comprehensive Water Strategic Plan* developed water demand projections for the planning period 2000 to 2025 and for build-out conditions, estimated to be in 2043. These demand projections were calculated using zoning, flow factors, and water and sewer timing categories.

The projected maximum day demand for the entire public water system including all pressure zones is estimated at 97.9 MGD for the projection year of 2025 (see Table 3-2 in the 2007 Master Plan for Water Supply and Sewerage Systems). The estimated maximum day groundwater supply of 112.9 MGD for the entire system will be adequate to meet projected demand. While the projected year 2043 maximum day demand of 123.9 MGD exceeds the estimated supply, the 2043 projection represents a hypothetical 'build out' or worst case scenario. As the water demand approaches the supply limits in the future, the County will continue to make needed adjustments in the public system which may include expansion of existing facilities and increasing flexibility between water pressure zones. More detailed information including demand projections in five-year intervals through 2025 may be found in the 2007 Master Plan for Water Supply and Sewerage Systems.

The City of Annapolis has proposed a Municipal Growth Boundary in its 2009 Comprehensive Plan [Draft] that provides for the modest expansion of City limits in two areas of approximately 90 acres and 16 acres respectively. The areas are currently developed but are considered opportunity areas for redevelopment if annexed into the City. In terms of public water and sewer, impacts on system capacities resulting from these future annexations would be minimal. Both areas are currently served or planned for service by public sewer within the County's Annapolis Sewer Service Area, which includes the City of Annapolis. Capacity in the sewer service area is projected to be adequate to serve any increased flow anticipated from future redevelopment plans, as presented in the City's Comprehensive Plan. Likewise, public water is currently provided to these two areas within the City's water system and the County's Broad Creek water pressure zone. Public water supply will be adequate to serve redevelopment of these two areas.

Other Water Supply Systems

In addition to private wells serving individual homes, there are over 530 community water systems in the County that are operated privately or by a non-County entity. The source of water for these wells is the Patuxent, Patapsco, Magothy and Aquia aquifers. These facilities typically maintain their own water treatment facilities. They are regulated by the Environmental Protection Agency who categorizes the wells into three types:

- Community Water Systems (CWS) – those systems that serve the same people year-round such as mobile home parks, businesses, or smaller communities,
- Non-Transient Non Community Water Systems (NTNC) – those systems that serve the same people but not year-round such as schools, and
- Transient Non-Community Water Systems (TNCWS) – those systems that do not consistently serve the same people such as parks, restaurants and gas stations.

Wellhead Protection

Source Water Assessments have been completed for all of the County's water supply facilities and include identification of potential sources of contamination and the susceptibility of each water supply source to contamination. Potential contamination threats identified include unused or improperly constructed wells. The Water and Sewer Master Plan recommends that these wells be abandoned per State well construction regulations in order to protect the drinking water sources.

The County also contracted to have a broader analysis on wellhead protection initiatives conducted for the Glen Burnie and Annapolis areas. The study, completed in 2003, found some susceptibility to contaminants in the Glen Burnie area. Recommendations include development of a Wellhead Protection Fund and education on best management practices to existing homeowners and businesses located within areas identified as having the highest susceptibility for point source contamination.

The County has also done significant work in collaboration with the State to identify potential contaminant sources and perform a hydro-geological study of the County. This effort has established the groundwork for the County to pursue a wellhead protection program using the State's model ordinance as a guideline. In addition, the County Health Department currently maintains a Groundwater Protection Plan for private water supplies which documents and summarizes policies and programs regarding onsite sewage disposal systems and the protection of groundwater where public sewer is not available. More detailed information on the topic of wellhead protection is found in the County's Water and Sewer Master Plan.

Wastewater Demand and Capacity

Eleven separate and distinct sewer service areas have been established for the purpose of providing sewerage facilities to serve Anne Arundel County. Figure 10-9 is a map that shows sewer service within the County. The areas that are depicted as 'Existing', 'Capital

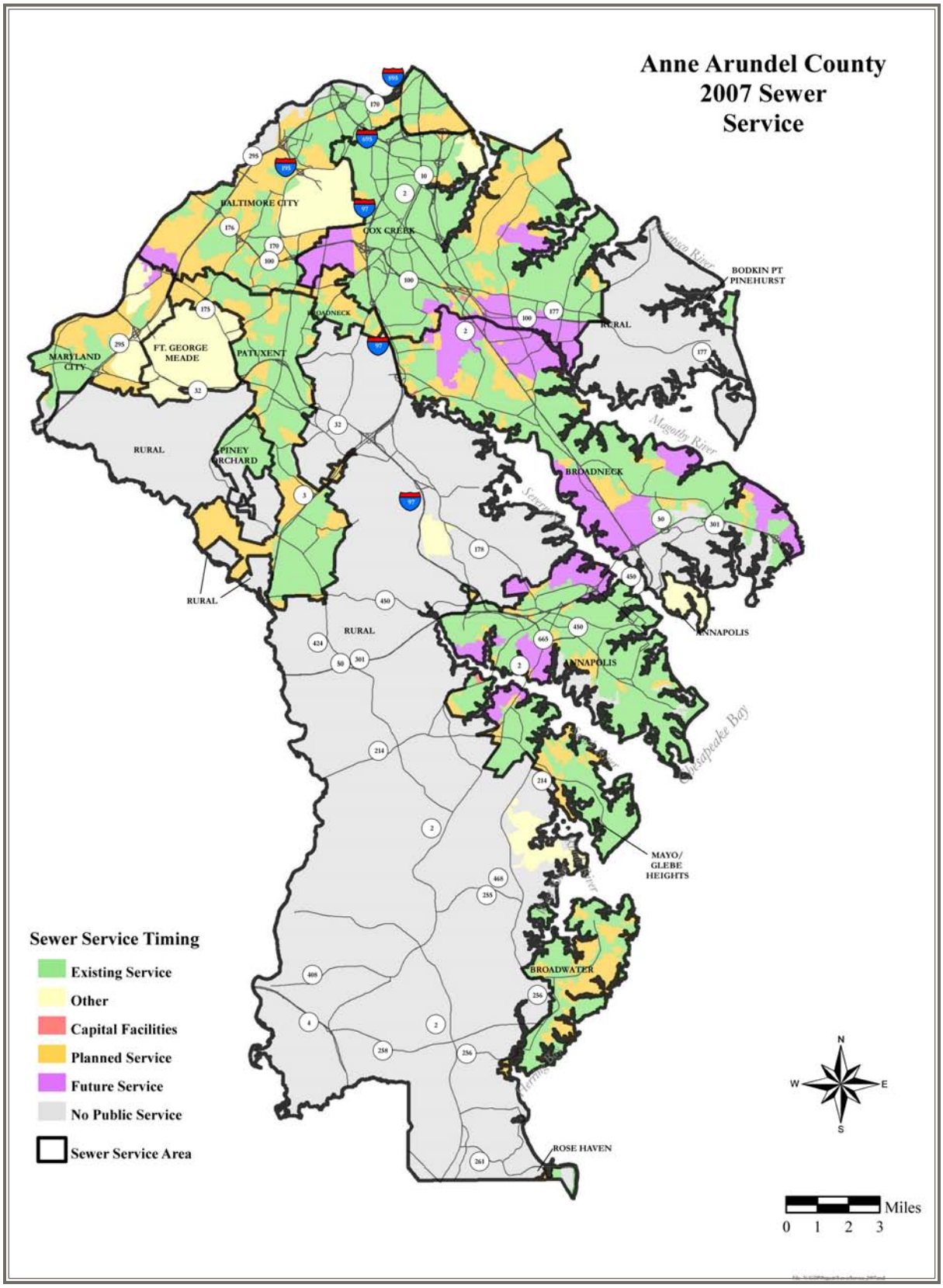
Facilities', 'Planned' and 'Future' comprise the ultimate area to be served by public sewer. There are some facilities that are privately operated, such as B.W.I. Airport, the US Naval Academy and Fort Meade. These facilities are shown as 'Other'. The remaining land is shown as 'No Public Service'. It is designated as Rural, is not planned for service by public sewer facilities and is or will be served by septic systems.

Public Sewer

According to the 2007 WSMP, the area currently served by public sewer is approximately 27% of the County and the ultimate area to be served is 44%. Of the eleven sewer service areas, eight are served by facilities owned and operated by the County. Two of the service areas have conveyance systems that are operated and maintained by the County but the treatment facilities are located in neighboring jurisdictions. Intra-jurisdictional agreements permit the transport of wastewater from the Baltimore City Sewer Service Area to the Patapsco Sewage Treatment Plant in Baltimore City and from the Rose Haven / Holland Point Sewer Service Area to the Chesapeake Beach Wastewater Treatment Plant in Calvert County. Piney Orchard Sewer Service Area is a privately owned and operated treatment facility; however, the collection system is owned and maintained by the County. There are over 111,000 public sewer connections and approximately 34.1 MGD (2005 total flow) are treated. The projected total flow at build-out is 74.16 MGD assuming full development of all property in the sewer service area at current zoning.

Between 2003 and 2007, the County conducted and completed a *Comprehensive Sewer Strategic Plan* (CSSP) for the Annapolis, Baltimore City, Broadneck, Broadwater, Cox Creek, Maryland City and Patuxent Sewer Service Areas. The CSSP was a 2-phase approach for planning the future modifications and expansion of the existing wastewater collection and treatment system. In Phase I of the study, the County's wastewater treatment plants were evaluated on a number of criteria including the State's anticipated effluent total nitrogen discharge goals and other future discharge permit requirements. Phase 2 evaluated ways to expand or modify the existing wastewater conveyance system to route flow toward treatment plants with the most available capacity to accommodate future growth in a cost effective manner. The major recommendations and findings of this study were incorporated into the 2007 *WSMP*.

Figure 10–9 2007 Sewer Service



Septic Systems

There are approximately 40,700[1] individual septic systems in the County (Figure 10-10). A little more than half of these systems are located in the area designated for No Public Service on the County's sewer service maps. The remaining systems are located in the area ultimately to be served by public sewer (Existing, Planned, and Future categories).

The County contracted with CH2Mhill to conduct a Countywide evaluation of the service options available for properties with onsite sewage disposal systems (OSDS, or septic systems). The *On-Site Sewage Disposal System Evaluation Study and Strategic Plan* (OSDS Study) was completed in early 2008 and focused on the most cost-effective retrofit plan to reduce nitrogen loads from septic systems. The study included four tasks.

Task 1 involved identifying, categorizing and prioritizing OSDS Countywide. Eight evaluation criteria were used. These include distance to on-site wastewater management problem areas, surface water, Critical Areas, bogs, and wellhead protection areas, as well as depth to groundwater, soil percolation rates, and slope. Ultimately only three criteria (distance to surface water and Critical Area, and slope) were used to prioritize the OSDS. As a result of this task, a GIS database was created of the OSDS locations and indication of whether the property is developed, undeveloped, and adjacent to wastewater service. The OSDS were ranked in terms of the severity of environmental and public health impacts and then were categorized relative to potential alternatives for mitigation.

A preliminary cost analysis of alternatives was conducted as part of Tasks 2 and 3. Detailed schematic designs were completed for ten pilot areas. Costs for these ten areas along with 14 other wastewater petition projects were estimated to develop cost factors to be applied for the three recommended treatment technologies. These alternatives included extension to public sewer, construction of a cluster system, and upgrade to an OSDS with enhanced nitrogen removal. The cost estimates were used to determine cost effectiveness of the treatment technologies. Relationships between cost effectiveness and the density of septic systems and to a lesser extent with distance to sewer and treatment technology were shown.

Task 4 of the study was the preparation of an Implementation Plan and a Final Report. A management area was defined as a service area that would have the same treatment approach recommended for each OSDS within the area (Figure 10-11). Each management area was evaluated to determine the effectiveness of four treatment approaches and divided into the following:

- Sewer System extensions with treatment at existing centralized wastewater reclamation facilities upgraded for enhanced nutrient removal,
- Cluster wastewater treatment facilities,

1 *Onsite Sewage Disposal Systems Evaluation Study, 2007, CH2MHILL, John E. Harms, Jr. & Associates, Inc., Stearns and Wheeler, LLC.*

Figure 10–10 Septic System Density Areas

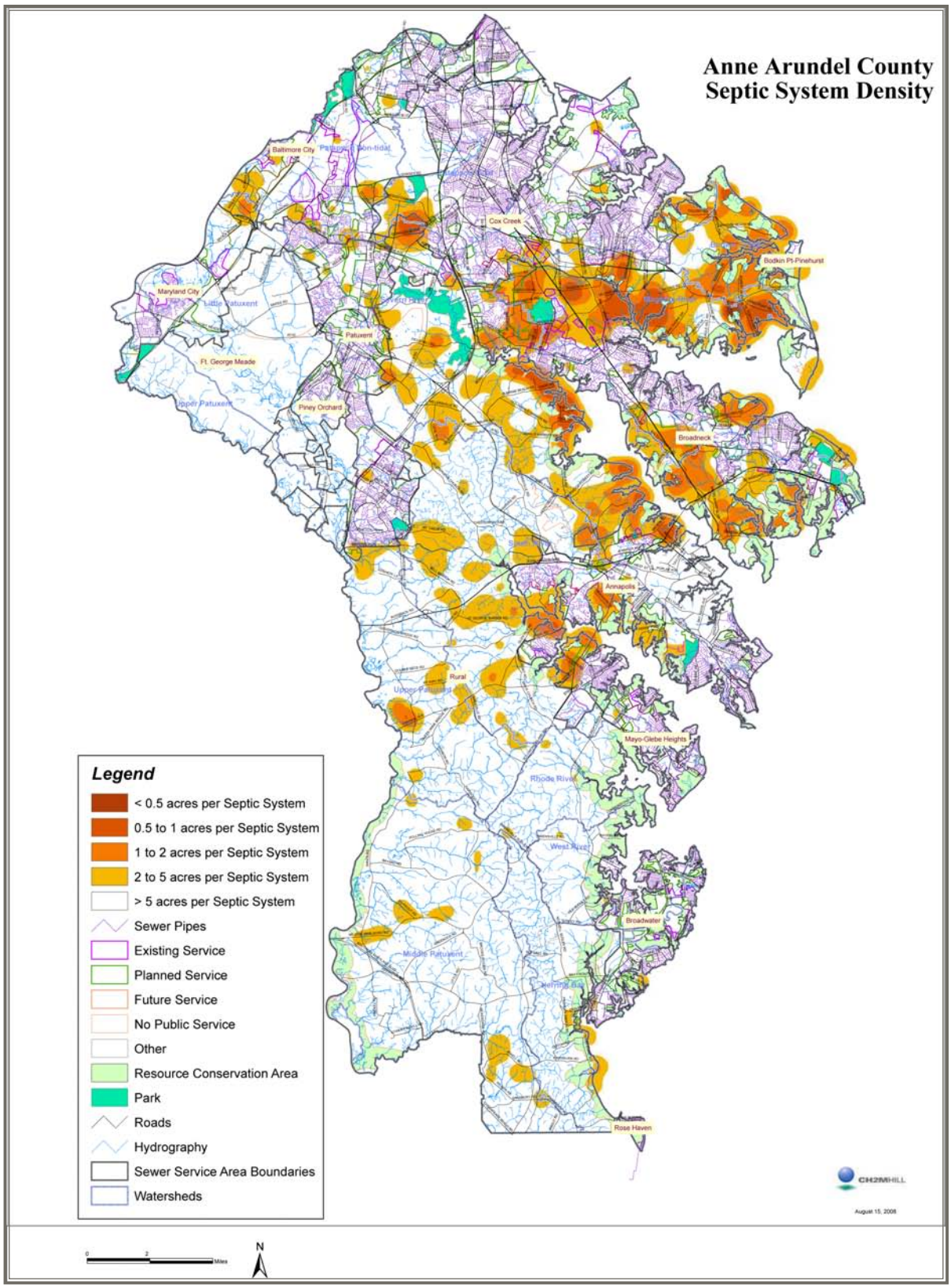
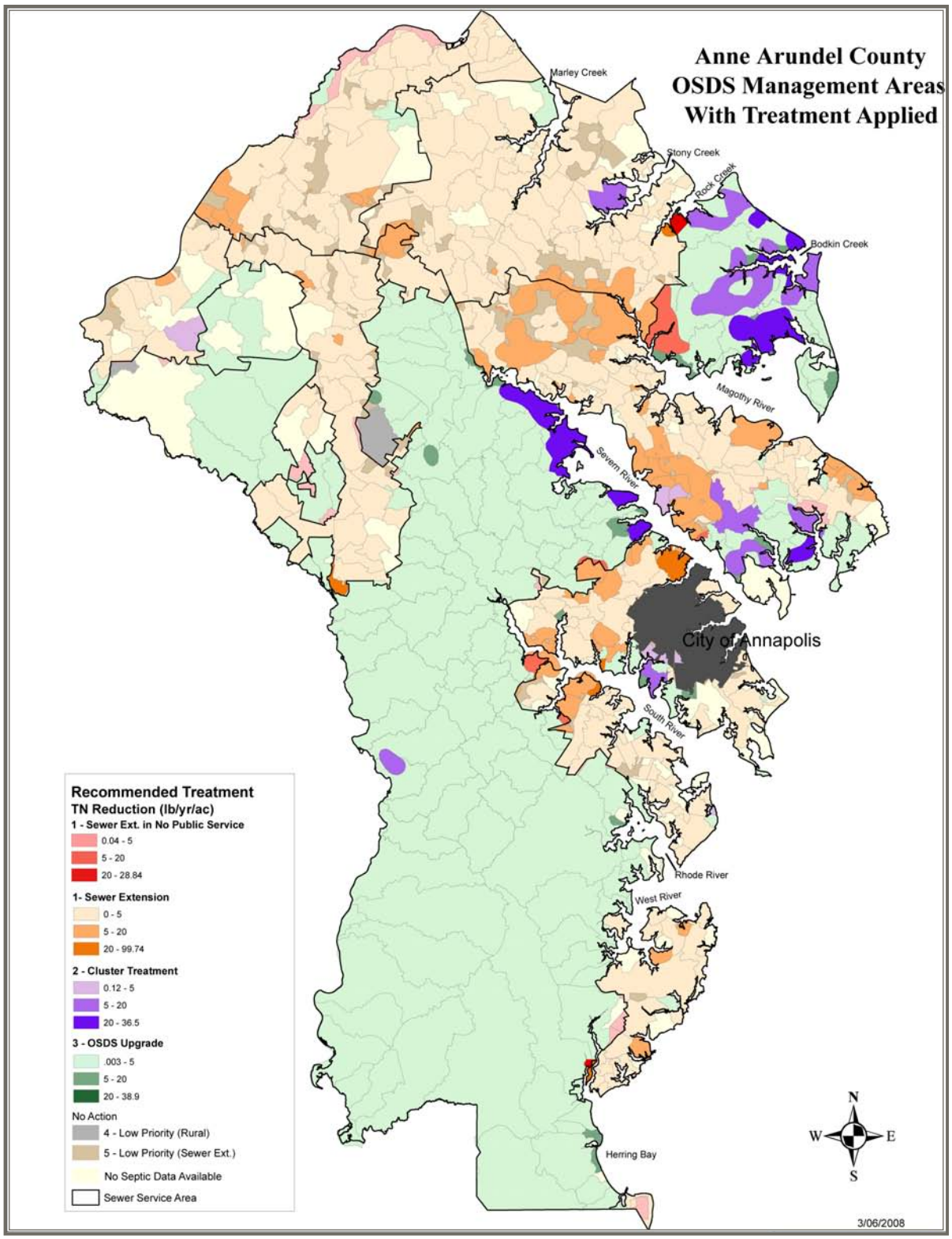


Figure 10–11 Onsite Sewage Disposal System Management Areas



- Upgrade each individual OSDS to an OSDS with enhanced nitrogen removal, and
- No near-term action, which consists of low-density, low-nitrogen delivery onsite systems.

Cost factors developed in Tasks 2 and 3 were applied to the recommended treatment approach for each management area. The management areas were then ranked based on the aggregate cost effectiveness of all OSDS within each area (pounds of nitrogen reduction per OSDS). In addition, several policy issues were identified for consideration in the selection of future treatment approaches and implementation policies for the County's onsite systems. These included permitting issues, Chesapeake Bay Restoration Fund eligibility, and compatibility with County comprehensive plans.

Current and Projected Pollutant Loads

Water Reclamation Facility Loads

The current total design capacity of the County's wastewater treatment plants with BNR upgrades is 46.64 MGD. The maximum total capacity based on the nutrient caps with the ENR upgrades is 62.2 MGD.

Tables 10-3 and 10-4 provide nitrogen and phosphorus pollutant loads for each of the water reclamation facilities based on existing conditions, build-out conditions based on the 2004 Land Use Plan and build-out conditions based on the 2009 Land Use Plan. The projected build-out wastewater flows assume full development of all property in the sewer service area at current zoning, consistent with the Land Use Plan.

In the Broadneck, Broadwater, Patuxent, Baltimore City, Cox Creek and Bodkin Point sewer service areas, build-out flows exceed the WRF's permitted capacity under the 2004 or the 2009 Land Use Plan. Additionally, in the Maryland City Sewer Service Area, build-out flows will exceed the WRF's permitted capacity. The County anticipates that during the planned expansions of these facilities, TMDL requirements will result in more stringent NPDES Permit limits thereby requiring costly facility upgrades. These upgrades will decrease available acreage at each WRF plant site. In order to support planned growth and accommodation of the TDML regulations, the County is investigating alternatives at those WRF sites with restricted acreage to redirect existing and future flows to service areas where facility sites can best support future upgrades and meet loading requirements. In the event that feasible alternatives cannot be identified or the advancement of treatment technologies lags, the TMDL regulations could restrict future land use and could conflict with Smart Growth initiatives.

Table 10–3 Wastewater Treatment Plant Loads Nitrogen (TN)

Nitrogen

	2005 Total Flow (MGD)			Current Design Capacity			Build Out Based on 2004 Land Use Plan			Future Design Capacity (with ENR)			Build Out Based on 2009 Land Use Plan		
Facility/SSA	(MGD)	Current TN (mg/L)	TN (lbs/Year)	(MGD)	Current TN (mg/L)	TN (lbs/Year)	(MGD)	TN with ENR (mg/L)	TN (lbs/Year)	(MGD)	TN with ENR (mg/L)	TN (lbs/Year)	(MGD)	TN with ENR (mg/L)	TN (lbs/Year)
Broadneck	5.32	3.0	48,600	6.00	3.0	54,800	13.86	3.0	126,600	8.00	3.0	73,058	13.86	3.0	126,600
Annapolis	8.84	4.7	126,500	13.00	4.7	186,000	17.24	3.0	157,400	17.30	3.0	158,293	17.24	3.0	157,400
Annapolis City & USNA	4.85						8.20						8.20		
County Portion	3.99						9.04						9.04		
Mayo - Glebe Heights	0.59	8.5	15,300	0.64	8.5	16,600	1.10	3.0	10,000	0.85	3.0	7,762	1.10	3.0	10,000
Broadwater	1.23	5.6	21,000	2.00	5.6	34,100	2.83	3.0	25,800	2.67	3.0	24,353	2.83	3.0	25,800
Chesapeake Beach	0.75	3.2		1.18	3.2		N/A			N/A			N/A		
County Portion-Rose Haven	0.08	3.2	800	0.14	3.2	1,300	0.20	3.0	1,800	0.14	3.0	1,256	0.20	3.0	1,800
Total Western Shore	16.06		212,200	21.78		292,800	35.23		321,600	28.96		264,722	35.23		321,600
Maryland City	1.13	7.9	27,200	2.50	7.9	60,100	2.95	3.0	26,900	3.33	3.0	30,441	4.18	3.0	38,100
Patuxent	5.45	3.0	49,800	7.50	3.0	68,500	13.42	3.0	122,600	10.00	3.0	91,323	13.42	3.0	122,600
Piney Orchard	0.52	2.8	4,400	1.20	2.8	10,300	0.98	3.0	9,000	1.60	3.0	14,619	0.98	3.0	9,000
Total Patuxent	7.10		81,400	11.20		138,900	17.35		158,500	14.93		136,383	18.58		169,700
Patapsco	59.27	18.0		73.00	18.0		N/A			N/A			N/A		
County Portion-Baltimore City	3.83	18.0	209,400	6.39	18.0	349,400	8.41	3.0	76,800	6.39	3.0	58,355	9.63	3.0	87,900
Cox Creek	11.54	8.0	281,000	15.00	8.0	365,300	22.67	3.0	207,000	20.00	3.0	182,646	22.67	3.0	207,000
Bodkin Point	0.01	40.0	700	0.01	40.0	700	0.09	40.0	8,800	0.01	40.0	700	0.09	40.0	8,800
Total Patapsco/Back	15.38		491,100	21.40		715,400	31.17		292,600	26.40		241,701	32.39		303,700
Total Flow within County:	**38.54**		**784,700**	**54.37**		**1,147,100**	**83.75**		**772,700**	**70.28**		**642,807**	**86.19**		**795,000**

Notes:

Data from Table 4-2 and 4-6 of the 2007 Master Plan for Water Supply and Sewerage Systems

Load for Bodkin Point system based on typical septic system effluent 40 mg/L using design capacity with an 80% Delivery Ratio

Baltimore City, Piney Orchard, Rose Haven/Holland Point are operated by other jurisdications or entities.

Calculations for non-County operated systems are based on 2005 flow information received from MDE on 3/17/08, concentrations based on 2006 data and Nutrient Caps based on 2005 Maryland Tributry Strategy.

Piney Orchard Future Design Capacity based on Nitrogen Treatment Load Cap

Table 10–4 Wastewater Treatment Plant Loads Phosphorus (TP)

Phosphorus

	2005 Total Flow (MGD)			Current Design Capacity			Build Out Based on 2004 Land Use Plan			Future Design Capacity (with ENR)			Build Out Based on 2009 Land Use Plan		
Facility/SSA	(MGD)	Current TP (mg/L)	TP (lbs/Year)	(MGD)	Current TP (mg/L)	TP (lbs/Year)	(MGD)	TP with ENR (mg/L)	TP (lbs/Year)	(MGD)	TP with ENR (mg/L)	TP (lbs/Year)	(MGD)	TN with ENR (mg/L)	TN (lbs/Year)
Broadneck	5.32	0.50	8,100	6.00	0.50	9,100	13.86	0.23	9,500	8.00	0.23	5,479	13.86	0.23	9,500
Annapolis	8.84	0.50	13,500	13.00	0.50	19,800	17.24	0.23	11,800	17.30	0.23	11,872	17.24	0.23	11,800
Annapolis City & USNA	4.85						8.20						8.20		
County Portion	3.99						9.04						9.04		
Mayo - Glebe Heights	0.59	0.80	1,400	0.64	0.80	1,600	1.10	0.23	800	0.85	0.23	582	1.10	0.23	800
Broadwater	1.23	0.50	1,900	2.00	0.50	3,000	2.83	0.23	1,900	2.67	0.23	1,826	2.83	0.23	1,900
Chesapeake Beach	0.75	0.86		1.18	0.86		N/A			N/A			N/A		
County Portion-Rose Haven	0.08	0.86	200	0.14	0.86	400	0.20	0.23	100	0.14	0.23	94	0.20	0.23	100
Total Western Shore	16.06		25,100	21.78		33,900	35.23		24,100	28.96		19,853	35.23		24,100
Maryland City	1.13	0.50	1,700	2.50	0.50	3,800	2.95	0.23	2,000	3.33	0.23	2,283	4.18	0.2	2,900
Patuxent	5.45	0.30	5,000	7.50	0.30	6,800	13.42	0.23	9,200	10.00	0.23	6,849	13.42	0.23	9,200
Piney Orchard	0.52	0.12	200	1.20	0.12	400	0.98	0.23	700	1.60	0.23	1,096	0.98	0.23	700
Total Patuxent	7.10		6,900	11.20		11,000	17.35		11,900	14.93		10,228	18.58		12,800
Patapsco	59.27	1.05		73.00	1.05		N/A			N/A			N/A		
County Portion-Baltimore City	3.83	1.05	12,200	6.39	1.05	20,400	8.41	0.23	5,800	6.39	0.23	4,377	9.63	0.2	6,600
Cox Creek	11.54	1.60	56,200	15.00	1.60	73,100	22.67	0.23	15,500	20.00	0.23	13,698	22.67	0.23	15,500
Bodkin Point			N/A			N/A			N/A			N/A			N/A
Total Patapsco/Back	15.37		68,400	21.39		93,500	31.08		21,300	26.39		18,075	32.30		22,100
Total Flow within County:	**38.53**		**100,400**	**54.37**		**138,400**	**83.66**		**57,300**	**70.28**		**48,156**	**86.10**		**59,000**

Notes:

Data from Table 4-2 and 4-6 of the 2007 Master Plan for Water Supply and Sewerage Systems

Load for Bodkin Point system based on typical septic system assumed to be near 0 for TP

Baltimore City, Piney Orchard, Rose Haven/Holland Point are operated by other jurisdications or entities.

Calculations for non-County operated systems are based on 2005 flow information received from MDE on 3/17/08, concentrations based on 2006 data and Nutrient Caps based on 2005 Maryland Tributry Strategy.

Piney Orchard Future Design Capacity based on Phosphorus Treatment Load Cap

Onsite Sewage Disposal System (Septic) Loads

Nitrogen loads were calculated for all existing OSDS Countywide without a treatment strategy and with a chosen treatment strategy. The recommended treatment strategies are the approaches assessed in the *OSDS Study* (sewer system extensions, cluster treatment facilities, enhanced nitrogen removal onsite septic disposal systems, or no action) and are based on the most cost-effective strategy identified in the study for each of the OSDS management areas in each watershed. Table 10-5 shows these nitrogen loads for the existing conditions and for built out conditions with and without treatment for each watershed. The loads without treatment do not assume implementation of the *Water and Sewer Master Plan*, while the loads with treatment assume full implementation of the *Water and Sewer Master Plan* and the OSDS Strategic Plan. The values are also aggregated

Table 10–5 Nitrogen Loads for Existing and Built Out Conditions for Septic Systems

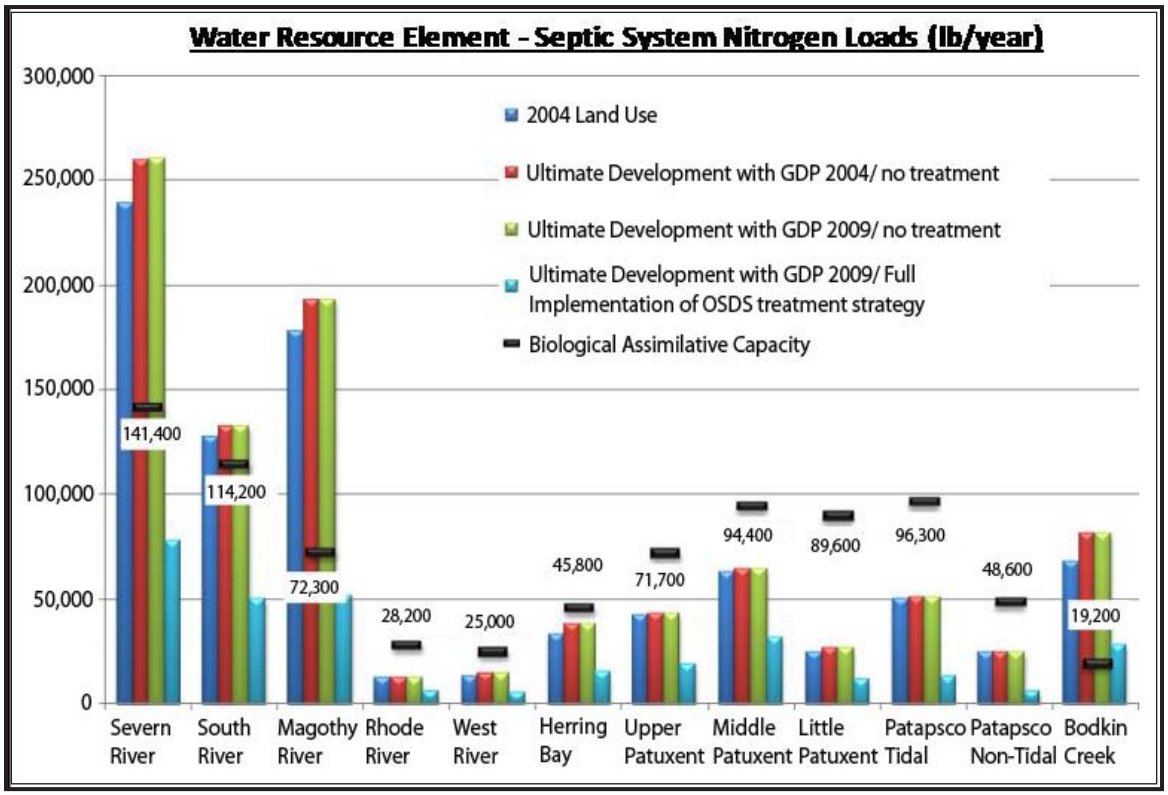
Watershed	Area	Existing Conditions Based on 2004 Landcover	Build Out based on GDP 2004 without Treatment		Build Out based on GDP 2009 without Treatment		Build Out based on GDP 2009 with the implementation of the OSDS Treatment Strategies	
	(Acres)	TN (lbs)	TN (lbs)	Departure from Existing	TN (lbs)	Departure from Existing	TN (lbs)	Departure from Existing
Severn River	44,200	239,300	260,456	8.1%	260,500	8.1%	77,700	-208%
South River	35,700	127,800	132,991	3.9%	133,000	3.9%	50,000	-156%
Magothy River	22,600	178,500	193,400	7.7%	193,400	7.7%	51,500	-247%
Rhode River	8,800	12,500	12,700	1.6%	12,700	1.6%	6,300	-98%
West River	7,800	13,600	14,400	5.6%	14,400	5.6%	5,500	-147%
Herring Bay	14,300	33,400	38,000	12.1%	38,000	12.1%	15,300	-118%
Total Lower Western Shore	133,400	605,200	651,950	7.2%	652,000	7.2%	206,300	-193%
Upper Patuxent River	22,400	42,100	43,300	2.8%	43,300	2.8%	18,700	-125%
Middle Patuxent	29,500	63,400	64,300	1.4%	64,300	1.4%	31,900	-99%
Little Patuxent	28,000	24,900	26,600	6.4%	26,600	6.4%	11,600	-115%
Total Patuxent	79,900	130,400	134,200	2.8%	134,200	2.8%	62,200	-109.6%
Patapsco Tidal	30,100	50,000	51,200	2.3%	51,200	2.3%	13,300	-276%
Patapsco Non-Tidal	15,200	24,800	24,800	0.0%	24,800	0.0%	6,300	-294%
Bodkin Creek	6,000	67,800	81,500	16.8%	81,500	16.8%	28,400	-139%
Total Patapsco/ Back	51,300	142,500	157,500	9.5%	157,500	9.5%	48,000	-197%

at the tributary basin scale. As can be seen, implementation of the various treatment strategies from the *OSDS Study* can result in significant nitrogen load reductions.

Benthic Assessment Scores compiled from the County's random and targeted monitoring programs within non-tidal streams were regressed against the nitrogen load contribution from OSDS systems. This regression analysis resulted in an inverse linear relationship suggesting that higher pollutant loadings within the watershed correspond to degraded biological functions. For the purpose of establishing the nutrient loading assimilative capacity, the loading corresponding to fair biological conditions or benthic score assessments equal to 3 was selected at 3.2 lbs/acre/year. Pollutant loading values exceeding the assimilative capacities means that the land use condition or plan does not support biological health and in turn does not meet the water quality standards.

Figure 10-12 is a plot of the septic system nitrogen loads with the assimilative capacities depicted as horizontal lines for each watershed within the Anne Arundel County jurisdictional boundary. As can be seen from the chart, the implementation of the OSDS strategic plan will reduce the nitrogen loads to levels below the stream biological assimilative capacity for all watersheds with the exception of Bodkin Creek.

Figure 10–12 Septic System Nitrogen Loads (lb/year)



Nonpoint Source Loads and the Assimilative Capacity

Pollutant loadings from nonpoint source runoff were estimated by the County for use in preparing its Watershed Management Plans and Targeted Nutrient Reduction Implementation Plans. Nonpoint source nutrient loads were estimated for the existing conditions and build-out conditions based on current and future land use plans. The pollutant loading analysis was conducted using the Watershed Management Tool and utilized pertinent data layers such as landcover, the Land Use Plan, stormwater management coverage, impervious coverage, soil infiltration rates, rainfall, and pollutant event mean concentration, among other pertinent data layers. The build-out conditions are based on the more intense use of either existing conditions or the maximum allowable development density under the current 2004 Land Use Plan and the proposed 2009 Land Use Plan.

Benthic Assessment Scores compiled from the County's random and targeted monitoring programs were regressed against modeled nitrogen and phosphorous loads. This regression analysis resulted in an inverse linear relationship suggesting that higher pollutant loadings within the watershed correspond to lowered biological functions. For the purpose of establishing the nutrient loading assimilative capacity, the loading corresponding to fair biological conditions or benthic score assessments equal to 3 was selected. The assimilative capacity for Nitrogen is 2.7 lbs/acre/year. The assimilative capacity for phosphorous is 0.38 lbs/acre/year. Pollutant loading values exceeding the assimilative capacities means that the land use condition or plan does not support biological health and in turn does not meet the water quality standards. It should be noted that the stormwater load correlations to biological functions were stronger and steeper than nitrogen load contributions from septic systems. This is due to the fact that stormwater runoff result in flashy and intense pollutant load transports derived from the rainfall intensities and surface runoff conditions, while septic load is derived from slow base flow pollutant leachate from ground water runoff.

The nitrogen and phosphorus loads for existing conditions and the ultimate build out conditions based on the current and future land use plans are shown in Table 10-6 and 10-7 for each watershed in the County. As can be seen from the tables and charts, nutrient loads in all three watersheds experience little change between the current 2004 Land Use Plan and the 2009 Land Use Plan. However, there are significant decreases in TN loads in the Lower Western Shore and Patuxent watersheds when environmentally-sensitive site design requirements are implemented. For the purpose of this analysis, these requirements are assumed to be implemented fully with no variances or exemptions. Due to the Stormwater Act of 2007 requirement of a 50% reduction of existing impervious area for redevelopment projects, the buildout scenario that assumes full adoption of that Act generally shows a greater reduction of stormwater runoff loads. The smaller decrease in TN loads in the Patapsco/Back watershed may be due to the fact that the overall watershed has a greater percentage of impervious acres under existing conditions (29% impervious as compared to 16% in the Lower Western Shore and 11% in the Patuxent) and under build-out conditions. Also, the Patapsco/Back watershed has more land area planned

and zoned for industrial uses, which tends to result in higher impervious coverage than residential uses. As previously discussed, the County will continue to study the potential reductions in these nutrient loads that can be achieved using a variety of alternatives such as the implementation of enhanced stormwater management BMPs or expanding the regulatory stream buffers, among other alternatives, in order to meet the assimilative capacity and water quality standards for the receiving waterbody.

Figure 10–13 Stormwater Total Nitrogen Loads (lb/yr)

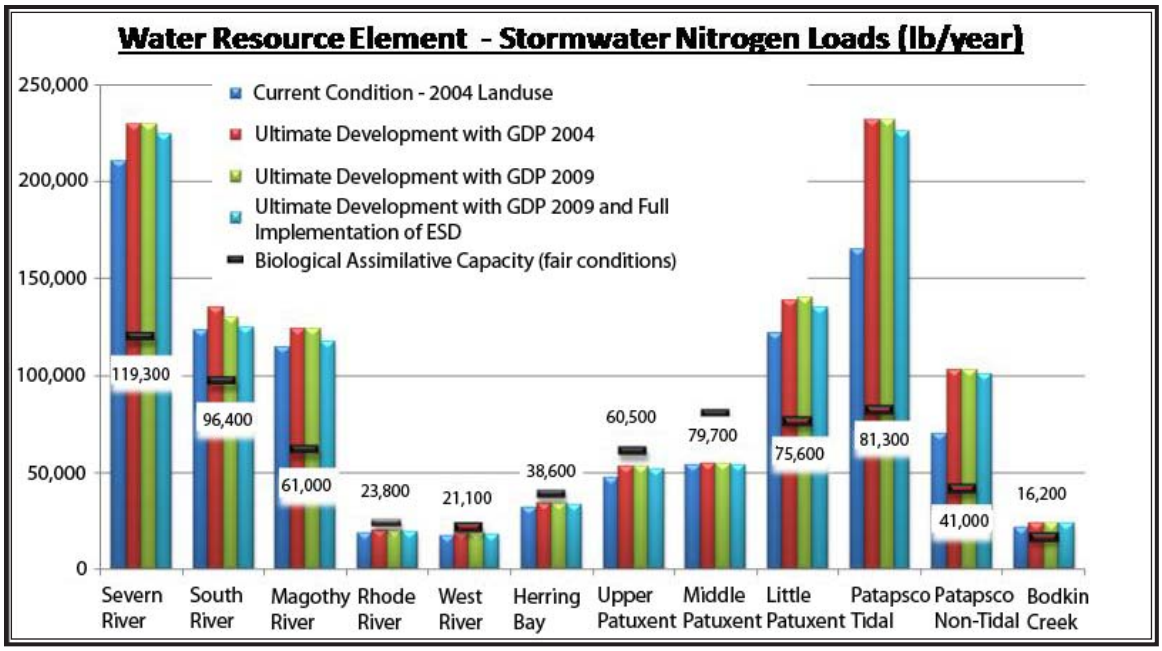


Figure 10–14 Stormwater Total Phosphorus Loads (lb/year)

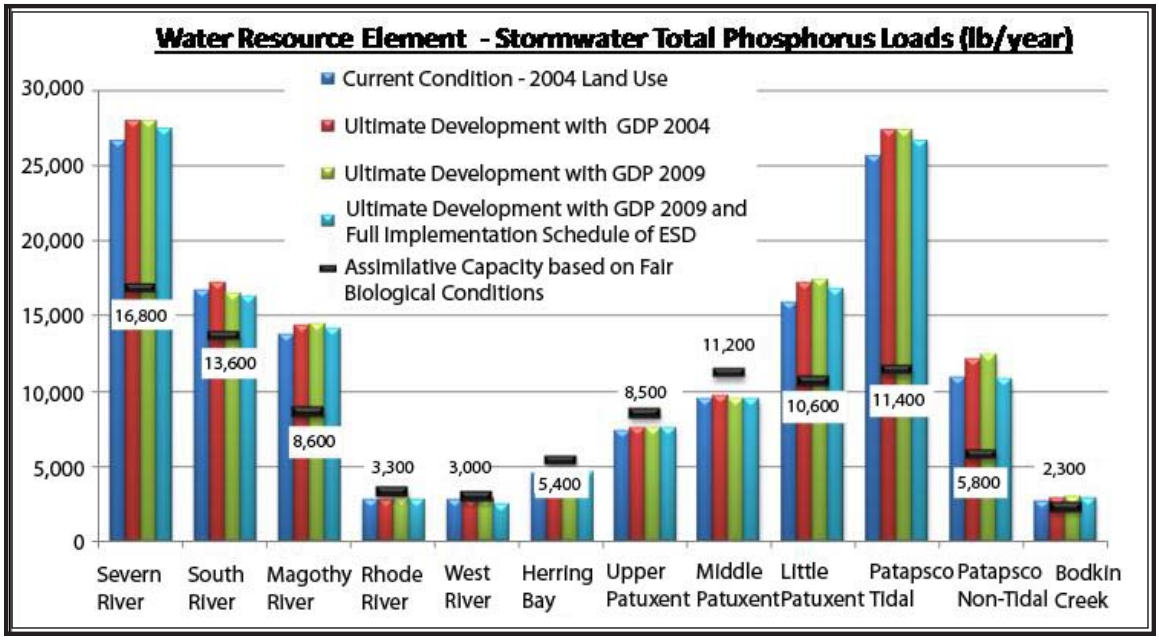


Table 10–6 Modeled Pollutant Load of Total Nitrogen for Existing and Future Conditions (GDP 2004 and GDP 2009) for Stormwater

Watershed	Area	Existing Conditions Based on 2004 Landcover		Build Out based on GDP 2004 Conditions with Implementation of MDE 2000 SWM Requirements		Build Out based on GDP 2009 Conditions with Implementation of MDE 2000 SWM Requirements		Build Out based on GDP 2009 Conditions with full adoption of Stormwater Act of 2007, Environmental Site Design	
	(Acres)	TN (lbs)	Impervious Area (acres)	TN (lbs)	Departure from Existing	TN (lbs)	Departure from Existing	TN (lbs)	Departure from Existing
Severn River	44,200	210,300	9,000	229,800	8.5%	229,800	8.5%	224,600	6.4%
South River	35,700	122,900	5,200	135,000	9.0%	130,000	5.5%	124,900	1.6%
Magothy River	22,600	114,700	4,600	123,700	7.2%	123,700	7.3%	117,300	2.2%
Rhode River	8,800	18,500	600	19,500	4.8%	19,500	5.1%	19,100	3.1%
West River	7,800	17,000	600	18,000	5.3%	18,000	5.6%	17,700	4.0%
Herring Bay	14,300	31,400	1,100	33,600	6.3%	33,600	6.5%	33,000	4.8%
Total Lower Western Shore	133,400	514,800	21,400	559,600	8.0%	554,600	7.2%	536,600	4.1%
Upper Patuxent River	22,400	46,700	1,800	52,800	11.5%	52,800	11.6%	51,400	9.1%
Middle Patuxent	29,500	53,200	1,700	54,500	2.3%	54,000	1.5%	53,800	1.1%
Little Patuxent	28,000	121,400	5,700	138,900	12.6%	140,200	13.4%	134,700	9.9%
Total Patuxent	79,900	221,300	9,200	246,200	10.1%	247,000	10.4%	239,900	7.8%
Patapsco Tidal	30,100	165,200	9,600	231,700	28.7%	231,700	28.7%	225,800	26.8%
Patapsco Non-Tidal	15,200	69,600	4,200	102,500	32.1%	103,000	32.4%	100,800	31.0%
Bodkin Creek	6,000	21,100	800	23,800	11.2%	23,800	11.3%	23,100	8.7%
Total Patapsco/ Back	51,300	255,900	14,600	358,000	28.5%	358,500	28.6%	349,700	26.8%

Table 10–7 Modeled Pollutant Load of Total Phosphorous for Existing and Future Conditions (GDP 2004 and GDP 2009) for Stormwater

Watershed	Area	Existing Conditions Based on 2004 Landcover		Build Out based on GDP 2004 Conditions with Implementation of MDE 2000 SWM Requirements		Build Out based on GDP 2009 Conditions with Implementation of MDE 2000 SWM Requirements		Build Out based on GDP 2009 Conditions with full adoption of Stormwater Act of 2007, Environmental Site Design	
	(Acres)	TP (lbs)	Impervious Area (acres)	TP (lbs)	Departure from Existing	TP (lbs)	Departure from Existing	TP (lbs)	Departure from Existing
Severn River	44,200	26,600	9,000	28,000	5.0%	28,000	5.0%	27,500	3.3%
South River	35,700	16,700	5,200	17,200	2.9%	16,500	-1.2%	16,300	-2.5%
Magothy River	22,600	13,700	4,600	14,400	4.9%	14,400	4.9%	14,100	2.8%
Rhode River	8,800	2,700	600	2,800	3.6%	2,800	3.6%	2,700	0.0%
West River	7,800	2,700	600	2,800	3.6%	2,800	3.6%	2,400	-12.5%
Herring Bay	14,300	4,500	1,100	4,700	4.3%	4,700	4.3%	4,600	2.2%
Total Lower Western Shore	133,400	66,900	21,400	69,900	4.3%	69,200	3.3%	67,600	1.0%
Upper Patuxent River	22,400	7,300	1,800	7,500	2.7%	7,500	2.7%	7,500	2.7%
Middle Patuxent	29,500	9,500	1,700	9,600	1.0%	9,500	0.0%	9,500	0.0%
Little Patuxent	28,000	15,900	5,700	17,200	7.6%	17,400	8.6%	16,800	5.4%
Total Patuxent	79,900	32,700	9,200	34,300	4.7%	34,400	4.9%	33,800	3.3%
Patapsco Tidal	30,100	25,600	9,600	27,400	6.6%	27,400	6.6%	26,600	3.8%
Patapsco Non-Tidal	15,200	10,900	4,200	12,100	9.9%	12,400	12.1%	10,800	-0.9%
Bodkin Creek	6,000	2,600	800	2,900	10.3%	2,900	10.3%	2,800	7.1%
Total Patapsco/ Back	51,300	39,100	14,600	42,400	7.8%	42,700	8.4%	40,200	2.7%

Mitigation Plans

Although the County experienced a steady, rapid increase in its population and housing over the last twenty years, the projected rate of growth will slowly begin to decline as the County reaches its maturity. The comprehensive 2009 Land Use Plan for the County focuses the remaining growth into targeted growth areas where infrastructure and capacity are available, encourages infill and redevelopment opportunities in the managed growth areas, and expands land preservation in the rural areas. Utilizing these types of "smart growth" techniques are the best that a mature, suburban County can achieve from a land use perspective in reducing nutrient loads in its watersheds. The goals, policies, and strategies outlined in the Environmental Stewardship and Quality Public Services chapters will also improve upon the ability for the County to provide a safe and adequate water supply, provide adequate wastewater capacity, and improve upon the impacts to the watershed from pollution. In addition to those actions, the strategies recommended in this section will further enhance the ability to improve the health of the watersheds.

Water Supply

In terms of planning for future growth, the potential constraints with regard to water supply are the ability to continue to purchase water from the City of Baltimore over the long term, and the adequacy of groundwater resources to serve additional growth in southern Anne Arundel County.

The County has optimized the use of its public water supply wells effectively, and has identified potential locations for new well fields so that future deficiencies in the public water supply are not likely to occur on a long-term basis, although short-term situations related to drought conditions can periodically occur. Due to concerns over the reliability and future quality of the Baltimore City water supply, the *2003 Comprehensive Water Strategic Plan* promotes a self-reliance strategy by expanding County infrastructure. By optimizing the use of existing and potential supply wells, reliance on the Baltimore City system will be minimized. Any future deficiencies between supply and demand can be met by purchasing water from the City.

Southern Anne Arundel County is part of the County's designated Rural Area, and large-scale or high-density development projects are not planned there. Still, there is additional development potential for low-density residential development that would be served by private individual wells. The long-term adequacy of groundwater resources is a regional issue that, as described below, is being comprehensively assessed by the State, U. S. Geological Survey, and the Maryland Geological Survey. The County will continue to participate in regional planning efforts to monitor and protect groundwater resources.

Since 2003, two separate Advisory Committees on the Management and Protection of the State's Water Resources were formed and charged with assessing the adequacy of existing resources to manage and protect the State's ground and surface water resources and with recommending the actions necessary to ensure that the management of the State's water

resources will provide for their long-term and sustainable use and protection. In addition, a pilot study of Southern Maryland area was conducted and a Water Quality Subcommittee was formed. The first committee found that a combination of factors such as drought, pollution of water sources, inadequate planning and infrastructure, incomplete information about water sources, and population growth could adversely affect the availability of water supply. The pilot study conducted for the Southern Maryland area recommended:

- A regional, multi-aquifer groundwater flow model to assess water supply and impacts of future applications for withdrawals,
- Additional monitoring of wells near large pumping centers to verify model predictability,
- Developing standard methods of data collection, storage and transfer on domestic wells, and
- Evaluating the appropriateness of the 80% management level in aquifers in close proximity to their recharge areas.

The second committee's final report recommends that:

- Maryland must develop a more robust water resources program based on sound, comprehensive data. A statewide water supply plan should be developed that includes a strong outreach program.
- Staffing, programmatic, and information needs of the water supply management program must be adequately and reliably funded. A permit fee to fund the cost of administering the permitting system should be established. Hydrologic studies should be funded with a separate appropriation. In addition, funding should be provided to local governments for water resources planning and to expand the network of stream and ground-water monitoring for both water quantity and quality.
- Specific legislative, regulatory, and programmatic changes should be implemented including codifying the State's water allocation policies, requiring local jurisdictions to protect source waters, promoting collaborative local planning, facilitating regional planning, and strengthening State and local programs for water conservation, water reuse, demand management, and individual wells. In addition, the use of individual wells in areas at high risk for well contamination should be discouraged, greater use should be made of the Water Management Strategy Areas, and administrative penalties for violations of water appropriation permits should be authorized..

In order to adequately address water quality issues, a Water Quality Subcommittee of the Advisory Committee on the Management and Protection of the State's Water Resources was formed to comprehensively address existing laws, regulations, policies, and programs. Their recommendations include:

- MDE and DNR initiate a comprehensive water quality monitoring program to assess the condition of Maryland's drinking water sources and track the progress of other programs designed to protect and improve water quality.

- MDE and DNR initiate studies designed to determine the occurrence and distribution of selected high priority contaminates in Maryland's source waters and their relationship to human health problems.
- MDE and DNR should coordinate the establishment of an electronic clearinghouse for water quality data.

In response to recommendations made by the Advisory Committees on the Management and Protection of the State's Water Resources, the Maryland Geological Survey and the U. S. Geological Survey developed a science plan for a comprehensive assessment to be used in allocating groundwater. Table 10-8 shows the phases and work activity for implementation of this effort that will take place over the next five years. The system, when fully developed, will be a web-based tool that will facilitate the use of groundwater management models when evaluating water management strategies.

Table 10–8 Implementation Schedule for a Comprehensive Regional Assessment of the Atlantic Coastal Plain Aquifer System in Maryland

Phase I (2006-2008)	Phase II (2008-2012)	Phase III (2010-2013)
Develop a GIS-based aquifer information system Update the aquifer framework Refine water use information Assess existing water quality data Determine management criteria Identify information gaps, develop plans for addressing gaps Develop detailed plans for groundwater flow and management models Build partnerships and inform the public	Develop and test groundwater flow model Simulate flow system, conduct field studies of recharge and leakage from published information and field investigations Develop models in selected areas with heavy withdrawal rates and models to better understand flow in unconfined parts of the aquifer Enhance groundwater level and streamflow monitoring networks Conduct water quality studies	Develop optimization model Link flow and optimization models to create interactive management model Test water management scenarios Inform partners and stakeholders

Water Reclamation Facilities

The Maryland Department of the Environment (MDE) is using the Bay Restoration Fund to upgrade the 66 major wastewater treatment plants, which discharge to the Chesapeake Bay, with enhanced nutrient removal (ENR) technologies. Once upgraded, these plants are expected to reduce nitrogen and phosphorus in the wastewater down to 3 mg / l total nitrogen and 0.3 mg / l total phosphorus, achieving approximately one-third of the needed reduction under the Chesapeake Bay 2000 Agreement. Anne Arundel County recently agreed to execute a Memorandum of Understanding (MOU) with MDE establishing targeted project schedules and respective commitments toward completing ENR upgrades at the Cox Creek, Annapolis, Broadcreek, Broadwater, Mayo, Patuxent and Maryland City facilities. In addition, an overall grant agreement was executed with MDE governing grant participation and funding eligibility to achieve the ENR upgrade in compliance with the Bay Restoration Fund. Subject to the availability of funds, MDE shall provide 100% of the eligible cost of planning, design, construction, and upgrade of the County WRF's to achieve ENR. The projects will be completed in a phased approach consistent with the schedules defined as part of the watershed based nutrient discharge permits and compliance schedules.

Enhanced nutrient will reduce nutrient loadings and increase treatment capacity at the County's Water Reclamation Facilities.

The facilities will be designed in accordance with the ENR Strategy and the Bay Restoration Fund Act to meet 3 mg/l Total Nitrogen (TN) and 0.3 mg/l Total Phosphorous (TP). However, total pound loadings as reported in the discharge permit will be calculated based on 4 mg/l TN and 0.3 mg/l TP at the current design rated capacity. This additional pound loading will allow the County to expand the hydraulic capacity another 33%. Once upgraded, the County shall operate each of the enhanced nutrient removal facilities in a manner that optimizes the nutrient removal capability of each facility. This may achieve better performance than the loading limits of the watershed nutrient discharge permits towards meeting a goal of 3 mg/l TN and 0.3 mg/l TP. It is estimated that once ENR is completed, the TN load will be reduced by 23% while processing capacity is increased 33%.

Project phasing will be implemented in order to achieve the above nutrient loadings while also allowing orderly expansion and growth to occur in accordance with a specific implementation plan. This will ensure that sufficient ENR upgrades have been implemented to accommodate the capacity increases. The County will make its best efforts to initiate the construction of all facilities by December 2011.

Under applicable federal and state law, the County may expand the capacity of the WRF in the future as long as the expanded capacities are in accordance with the County's most recent Water and Sewer Master Plan and the watershed-based nutrient discharge limits, or any more stringent local water quality based limitations are not exceeded by the expansion.

The MOU also established two watersheds for internal allocation of pollutant loads during ENR implementation. New capacity ratings and associated nutrient limits will be implemented through these watershed discharge permits. Two watershed nutrient discharge permits (one for Patuxent/Maryland City and another to cover Broadneck, Broadwater, Mayo, Annapolis, and Cox Creek) will be developed and issued which will govern the nutrient removal requirements, capacity ratings, and schedules for each of the County WRF. Each nutrient discharge permit will contain a permitted annual pollutant loading of TN and TP (in lbs/yr) permitted to be discharged in accordance with the previously described computation.

Nutrient-based capacity limits will be determined from the total nutrient loading allocation for the individual watershed, not specific discharges from any one individual County WRF, unless a local TMDL or water quality requirement is more restrictive. This provides the County with flexibility to phase its ENR improvements and maintain pollutant total loadings within the permitted levels for each watershed.

Nutrient loads for each watershed can be increased through trading consistent with a statewide policy recently developed by MDE. The concept of nutrient trading allows a discharger of nutrients, faced with expensive nutrient reductions to meet water quality standards, to purchase "credits" (e.g., pounds of nitrogen) from a second nutrient discharger that has reduced its discharge below its legal requirement. This process allows dischargers with higher nutrient reduction costs to pay another discharger for equivalent reductions. Trading also enables entities with low clean up costs to reduce discharges below legal requirements and generate revenue.

MDE will consider this signed agreement as compliance by the County with the first phase of the implementation to meet the requirements of the TMDL program for both local water quality and Chesapeake Bay nutrients. By completing ENR upgrades at these plants the County will substantially reduce the contribution of nitrogen and phosphorous to the Chesapeake Bay while allowing for future expansion to accommodate planned growth and development.

Goal: Provide the highest level of wastewater treatment capabilities economically achievable in order to reduce pollutant loads to area tributaries.

Policy 1: Comply with the nutrient loads limits of all County Water Reclamation Facilities.

Actions:

- Complete ENR upgrades at Water Reclamation Facilities per Memorandum of Understanding with MDE.
- Determine the ability to increase treatment capacities at Water Reclamation Facilities using the "bubble permit" concept.
- Identify weaknesses in pipe infrastructure and explore the development of a more reliable power back-up solution for pumping stations.

Septic Systems

The following actions were recommended in the OSDS Evaluation Study for implementation of the treatment approaches:

- Meet with MDE and DNR to articulate the County's OSDS Strategy,
- Work with MDE, DNR and State legislators to revise the Chesapeake Bay Restoration Fund Act (CBRFA) language,
- Partner with MDE, DNR and others to update the science of OSDS load estimates, (concentrations, delivery ratios) and the Chesapeake Bay model,
- Partner with MDE and DNR to evaluate alternatives for new OSDS cluster treatment systems (new land application / reuse options, new outfall options in shellfish areas),
- Partner with MDE and DNR to develop a OSDS load credit mechanism for water reclamation (WRF) load caps,
- Develop OSDS Environmental Fee Study and Ordinance,
- Develop OSDS Maintenance Ordinance,
- Make revisions to the General Development Plan: identify changes in areas of planned sewer service (additions and deletions); identify priorities; identify areas designated for limited sewer service for managing areas of existing OSDS targeted either for sewer extension or cluster systems, and
- Summarize how this study can be used to address septic system component of Water Resources Element.

In addition, technical, policy, regulatory, and statutory issues were identified for consideration. These include:

- Need to improve the understanding of existing OSDS effluent nitrogen loads and delivery ratios
- Coordination with the General Development Plan,
- Environmental Fee for new onsite sewage disposal systems,
- OSDS reliability and sustainability of individual upgrades,
- Translating and applying tributary strategy goals,
- Chesapeake Bay Restoration Fund Act eligibility,
- Wasteload allocation for new cluster treatment facilities,

- Management of cluster system effluent, and
- OSDS hookup credits and the bubble permit.

Recent State legislation was passed that will help fund community sewerage systems. Specified fee revenue collected for the Bay Restoration Fund can be used to award grants or loans up to 100% of:

- The costs attributable to upgrading an onsite sewage disposal system and a system that utilizes the best available technology for the removal of nitrogen,
- The cost difference between a conventional onsite sewage disposal system and a system that utilizes the best available technology for nitrogen removal,
- The cost of repairing or replacing a failing onsite sewage disposal system that uses the best available technology for nitrogen removal,
- The cost, up to the sum of the costs authorized under number 2 for each individual system, or replacing multiple on-site sewage disposal systems located in the same community with a new community sewerage system that is owned by a local government and that meets enhanced nutrient removal standards.

Goal: Achieve significant reductions in nutrient loads from onsite septic systems.

Policy 1: Reduce total nutrient loads from onsite septic systems within the County with particular emphasis on reduction in the Severn River, South River, Magothy River and Bodkin Creek watersheds where nutrient loads are the most significant.

Actions:

- Develop a short and long-term strategic plan for implementing the recommendations from the OSDS Study to address problem septic areas, based on the priorities identified in that study for addressing first those areas that are potentially generating the most significant pollutant loads. This strategic plan will require feasibility and engineering studies, public outreach, and potentially other planning studies for the various OSDS management areas, and funding strategies to implement the projects.

- In conjunction with the above, apply for funding through the State's Chesapeake Bay Restoration Fund program to implement the OSDS strategies.

- Update the map of Onsite Wastewater Management Problem Areas in the Water and Sewer Master Plan to reflect the most current information.

- Explore additional funding techniques that can be used for community connections to public sewer or installation of private community systems in known problem septic areas.

Policy 2: For the benefit of reducing nutrient loads to local tributaries, communities served by onsite septic systems that are identified as problem septic areas, and areas with a high potential to generate significant pollutant loads from septic systems, should be placed in the Planned Sewer Service timing category if it is feasible to extend public sewer or install community treatment systems in those areas, regardless of the Land Use Plan and zoning. Extension of public sewer in such cases will not be considered justification in itself for changing the Land Use Plan or zoning in these areas, and should not be considered as inconsistent with the General Development Plan.

Actions:

- Identify communities served by onsite septic systems that are currently problem septic areas, and areas with a high potential to generate significant pollutant loads from septic systems, and amend the Water and Sewer Master Plan to include these areas in the Planned Sewer Service category if not already.
- In those cases where extension of public sewer is the most feasible alternative to address a problem septic area, determine whether the use of denied access sewer lines would be warranted, and incorporate policies and provisions into the Water and Sewer Master Plan as needed to indicate where denied access sewer lines are proposed.
- In addition, add these communities to the Priority Funding Area where possible so they will be eligible for Bay Restoration Fund grants for public sewer extension.
- Provide information to homeowners and business owners regarding the importance of regular maintenance to septic systems.
- Develop a more streamlined petition process for community connections to public sewer in order to better accomplish some of the OSDS strategies.
- Evaluate the feasibility of code revisions to require all new or replacement private septic systems to utilize the latest standards for denitrification. Currently this requirement applies only within the Critical Area. Determine whether it is feasible in other areas.

Nonpoint Source Loads

The Anne Arundel County Watershed Ecosystem and Restoration Services (WERS) Division has developed comprehensive and preliminary mitigation implementation plans with varying degrees of detail for the Severn, South, Upper Patuxent, Magothy, and the Patapsco Tidal and Non Tidal Watersheds. The Environmental Capital Improvement Project fund has been the primary vehicle for implementing restoration projects as recommended by the available mitigation plans. These restoration projects are reported annually to the Maryland Department of the Environment to fulfill the County's NPDES

permit requirement for assessment, planning, and restoration. WERS has engaged in publishing the watershed assessments, problem area ranking, and mitigation recommendation in Geographic Information System (GIS) enterprise mapping applications. This information should be consulted by future new development and redevelopment projects to ensure that stormwater mitigation plans include stretch goal requirements for correcting downstream water capacity, quality, and infrastructure deficiency issues within the proximity of the project and to the greatest extent feasible as a contingency to development.

In addition, the County is currently revising Articles 16 and 17 of the County Code to implement the State's Stormwater Management Act of 2007. The Act requires new development to use environmental site design (ESD) and to control stormwater runoff using nonstructural best management practices and other low impact site design techniques to the maximum extent practicable. MDE is currently addressing the requirements of the Act including changes to State regulations as well as the State's 2000 Stormwater Design Manual. Prior to this Act, ESD was encouraged through a series of credits found in the 2000 Stormwater Design Manual.

Implementation of the Stormwater Management Act of 2007 will have an important role in addressing water resource restoration and mitigation requirements. The Stormwater Management Act of 2007 features the following core principles:

- Increase Onsite Runoff Reduction Volumes (predevelopment hydrology)
- Require a Unified Early Environmental Site Design (ESD) Map
- Establish Nutrient-Based Stormwater Loading Criteria (nutrient discharge limits), where:
  - development > 40% Impervious TN< 2.68 lbs/acre/year
  - development < 40% Impervious TN < 0.28 lbs/acre/year
- ESD Applies to Redevelopment – 50% reduction in existing impervious
- Fast track implementation

By adopting the Environmental Sensitive Design criteria for new developments and stretch goal redevelopment criteria for existing developments as promulgated by the Stormwater Management Act of 2007, the County expects to see fewer impacts from future development and even an improvement to the current conditions through site redevelopment under stricter stormwater management regulations.

As is the case with mitigating pollutant loads from septic systems, the financial challenge in dealing with stormwater runoff is significant. Existing stormwater infrastructure needs identified by the County are discussed in Chapter 11 along with their associated capital improvement costs. However, the additional costs related to reducing nonpoint source pollutant loads to meet TMDL requirements are more difficult to quantify. Some of this cost will certainly be incurred by private developers, but the County will need to explore other potential funding alternatives, such as establishing a stormwater utility, in order to accomplish its nonpoint source pollution reduction goals.

The County is actively engaging in coordination efforts with the Maryland Department of Environment aimed at formulating guidelines and developing implementation plans to address these mitigation requirements. Some of the important technical and policy questions currently under discussion pertain to defining the assimilative capacity for all watersheds, load allocation issues, implementation schedule, local government versus state/federal/private responsibilities, available restoration technologies, and financial strategies, among many other issues.

Goal: Improve stormwater management practices throughout the County to reduce nonpoint source pollutant loads and achieve water quality standards.

Policy 1: Be proactive in achieving the greatest reduction in nonpoint source loads attainable.

Actions:

- Develop additional data layers and input needed to model and assess the effectiveness of existing and future stormwater management practices in reducing nonpoint source pollutant loads.
- Complete and maintain an accurate database of all privately and publicly owned and maintained stormwater management facilities in the County.
- Conduct field monitoring to assess the effectiveness of current stormwater management practices in reducing nonpoint source pollutants. Report inspection and maintenance findings to the facility owner and the watershed assessment and planning program for retrofit action recommendations, prioritization, and implementation.
- Evaluate alternatives for improving, enforcing, and funding long-term inspection and maintenance programs of both private and public stormwater management facilities.
- Work with the Departments of Inspections and Permits and Public Works to secure condition assessment data and maintenance schedules for all privately and publicly owned stormwater practices. Incorporate the data within the Watershed Management Tool to assess the effectiveness, prioritize retrofit actions, and develop retrofit implementation plans.
- Update standards and specifications for innovative stormwater management practices based on lessons learned from inspection, maintenance, and monitoring.
- Revise the County's Stormwater Practices and Procedures Manual to address new requirements of the State's 2007 Stormwater Management Act and to incorporate specific criteria for environmentally sensitive site design.

- Develop strategies to promote greater use of Green Buildings, by developers as well as individual homeowners, as a key strategy in reducing stormwater runoff loads to local tributaries. Evaluate the Code to make sure that Green Building technologies are not impeded by existing code requirements.
- Provide incentives to promote the use of permeable paving surfaces in new developments and redevelopment to decrease stormwater runoff.
- Explore the possibility of increasing the requirement from 20% to 50% for treatment of impervious area on redevelopment sites.
- Develop design guidelines and specifications for the Regenerative Coastal Plain Outfall and Wetland Seepage system. Incorporate the information into the County's Stormwater Design Manual.
- Consider the use of tax credits to encourage soft tidal edge erosion control techniques such as marsh planting.
- Explore the use of a stormwater utility fee on impervious surface areas.

Finally, the goal of achieving or exceeding Federal and State mandated water quality standards in all watersheds in the County was established in Chapter 5. The policies and actions identified for meeting this goal constitute the additional planning steps for implementing the Water Resources Plan.

Chapter 11: Concurrency Management Plan

Concurrency management involves the process of measuring and tracking the operational capacities and levels of service of public facilities in order to ensure that adequate capacities and service levels can be maintained as needed to serve the existing population base as well as future growth. Concurrency management also enables a local government to ensure that the appropriate funding mechanisms are in place and sufficient funding is allocated to meet service demands and to maintain the desired service levels.

The Anne Arundel County Code (Article 18) requires the County's General Development Plan to address the issue of growth management in order to minimize potential adverse impacts of new development by ensuring that public facilities adequate to support future development are in place at the time the future development occurs. The Code requires that this adequacy be demonstrated for the specific public facilities of County and State roads, public schools, fire protection and EMS services, and stormwater management facilities. Specifically, the GDP must define level of service standards, evaluate existing and future demand, identify improvements needed and associated costs to serve that demand over a ten year timeframe, and describe funding sources available or needed to provide the needed improvements. In the GDP, the term concurrency management is used in addressing this code requirement.

Existing mechanisms in place that address these requirements in part include the Adequate Public Facilities (APF) regulations in Article 17 of the County Code, and the Capital Budget and Program. Current APF regulations require that development plan applications pass specific APF tests as a condition of subdivision plan or site plan approval. While this enables the County to track available capacities of public facilities on a project-by-project basis, it does not provide for the more comprehensive and long range assessment of infrastructure capacities needed to ensure adequate levels of service over the long term. Likewise, the Capital Budget and Program is updated and adopted annually and allows funding for capital facility needs to be allocated over a six-year program, but does not guarantee that adequate funding will be programmed to meet future facility demands over the long term. Therefore, a more holistic approach that assesses projected growth and future demand for capital improvements over a longer planning horizon is warranted.

Method of Analysis and Information Sources

For the purposes of this analysis of existing and future demand on public facilities, defined levels of service are based on operational capacity of the public facility, in other words, the physical requirements of the facility in terms of space, equipment, miles, etc. For example, strategic planning for public schools may identify needs not only for additional space as related to the number of students that can be accommodated, but also for expanded curriculums or programs. However, this analysis will focus only on the capital facility needs to maintain the desired operational capacities, since these are the costs most directly related to new growth in the County.

Several individual sources and studies were used to derive information for this analysis. These are listed and described below:

- Information from the County's Office of Budget on capital project requests was used to assess existing and future capital needs.
- "Phase I Report: Fiscal Impact Analysis of Four Growth Scenarios" (June 2008) was prepared in consultation with the consulting firm Tischler Bise to estimate direct revenues and costs to the County of providing public facilities and services to serve new development assuming current growth trends as identified in the Baltimore Metropolitan Council's (BMC) Round 7a Forecasts and also assuming alternative growth scenarios.
- "Phase II Report: Fiscal Evaluation and Revenue Strategies" (December 2008), also prepared by Tischler Bise, assessed ongoing capital costs to serve existing development as well as future projected costs to serve new development and to correct existing infrastructure backlogs.
- The Countywide Traffic Model (AATRavM 1.1) was used to estimate average daily travel demand and to estimate operational levels of service during peak volume hours for base year 2005 and future year 2035 based on BMC's Round 7a forecasts.
- "Fire Services Deployment Study" (November 2008) was prepared in consultation with System Planning Corporation's TriData Division to assess the Fire Department's ability to meet service demands at appropriate levels over a five year study horizon.

More specific details on methodologies and assumptions used are described below or can be found in the studies or reports cited above.

Level of Service Standards and Analysis of Existing and Future Demand

This section defines level of service standards for the specified public facilities and presents findings related to existing and future demand on the facilities and capital improvements needed.

Public Roads

Level of Service Standard

In traffic analysis, Level of Service (LOS) represents the amount of congestion on a roadway, with LOS A representing free flowing conditions with minimal congestion and LOS F representing the most congested conditions. Where possible, the County and the State Highway Administration recommend LOS D or higher as a standard for operation during peak volume hours. However, this standard is not always achievable or even desirable in certain settings such as a town center where more intense development is promoted.

For the purpose of this analysis, the established level of service standard for public roads in the County is an operational LOS D or higher during peak volume hours for all freeways, major and minor arterials and collectors.

Existing and Future Demand

The County's Countywide Traffic Model is set up to model daily traffic flow for a base year (2005) and future year (2035) based on the BMC Round 7a Forecasts. Therefore, for this analysis the County modeled daily LOS for both State and County roads in the base year and future year to determine the road segments that operate at a LOS D or higher in the peak hours.

There are a total of 2,170 centerline miles in the County's road network. The traffic model incorporates 604 centerline miles of roadways including all major road facilities and important collectors, but not local roads. The model output is average daily traffic (ADT), which is then evaluated against a computed maximum daily service flow.

The results of the analysis shown below indicate that under current conditions (assumed base year) there are 93 centerline miles of roadways in the County that do not meet the standard of LOS D or higher in the peak period. In the forecast year, (2035) there are an additional 37 centerline miles of roads that do not meet the standard (Table 11-1). In both years, most of the deficient roadway segments are on State roads, which carry the heaviest traffic volumes in the County. There are an estimated total of 130 centerline miles that will not meet the LOS standard by 2035 if no capital improvements or traffic reduction measures are made.

Table 11–1 Centerline Miles of Roads Below LOS Standard

Year	State Centerline Miles	County Centerline Miles	Total Centerline Miles
2005	83	10	93
2035	27	10	37
Total	110	20	130

Capital Improvements and Costs

Cost estimates were prepared to estimate the capital costs of providing additional lane capacity to correct the LOS deficiencies shown above. These are planning level cost estimates prepared using generally accepted cost relationships between construction and other components of project development. A cost factor of $2.3 million per lane mile was used for construction costs, and percentage costs for right of way acquisition, planning and engineering, and contingencies were also factored into the estimates. For State road facilities, a cost share split of 50 percent was assumed, meaning that the State and County would each cover 50 percent of the improvement costs on State roads. In reality, the County share of State road improvement costs can vary widely depending on available funding and other factors.

Using these assumptions, the results below indicate that capital funding of $544 million would be needed to bring all County and State roadways up to the defined LOS standard under current (base year) conditions (Table 11-2). By year 2035, an additional $180 million would be needed to maintain the road network at the defined LOS standard.

Table 11–2 Costs to Correct Road LOS Deficiencies (x $1,000)

Year	State Roads	County Roads	Total
2005	$439,000	$105,000	$544,000
2035	$75,000	$105,000	$180,000
Total	$514,000	$210,000	$724,000

Of course, there are alternatives other than capital improvements that can serve to reduce traffic congestion and improve levels of service on area roads. These include increased use of carpooling and vanpooling, telecommuting, and other strategies discussed in Chapter 9. The County should make concentrated efforts to promote other travel demand management strategies to reduce the capital cost burden on both the State and the County.

Public Schools

The Anne Arundel County Public School (AACPS) system currently serves over 73,000 students with a staff of over 5,000 teachers working in 118 public schools. The system is organized in 12 high school feeder districts and includes 19 middle schools and 78 elementary schools. AACPS also operates several special schools including alternative education centers, special education centers, and charter schools.

Level of Service Standard

The Educational Facilities Master Plan determines a utilization rate annually for each County public school. The rate represents a comparison of the State Rated Capacity versus the full time enrollment at each school, with 100% representing a fully utilized school. The County's APF test for public schools is based on the utilization rate, and schools that are above 100% utilization are considered over capacity and are closed to new development projects for a period of time.

For the purpose of this analysis, the established level of service standard for public schools in the County is a school utilization rate of 100% or less for all elementary, middle, and high schools. It is noted that school utilization will fluctuate annually as well as during the school year, as residents move into or out of a school district. Also, because funds are limited, State funding for school expansions or construction is rarely available unless a school has reached 120% capacity or more. Therefore, the County must evaluate whether it is realistic, from a fiscal standpoint, to maintain all public schools at 100% capacity or lower at all times.

Existing and Future Demand

To meet the standard of 100% utilization or less for all schools, capital improvements to public facilities are not needed to accommodate existing demand. There is currently sufficient capacity in the school system to serve current enrollment.

It is noted that although sufficient capacity currently exists on a system-wide basis, several of the public schools are frequently over capacity, particularly with respect to some of the elementary schools. The July 2008 Educational Facilities Master Plan indicates that 4 high schools, 1 middle school, and 24 elementary schools exceeded 100% utilization in 2007. The Board of Education periodically makes adjustments to school district boundaries to help alleviate overcrowding in specific schools. The BOE will need to use both funding and redistricting options to maintain the most efficient use of school capacity if the objective is to maintain 100% utilization at all schools.

To estimate the future demand on school capacity, results from the Fiscal Impact Analysis, Phase I (the "Phase I Report") were used. The study projected the demand on school capital facilities from new growth over an 18-year period from 2008-2025. The Phase I Report used the following assumptions in this analysis:

- School capacity needs to accommodate new growth were projected by school impact fee district.
- When elementary school capacities reached 100% in a school impact fee district, the model assumed a new school would be provided with a capacity of 700 seats at a cost of $30 million.
- When middle school capacities reached 100% in a school impact fee district, the model assumed a middle school expansion would be provided with a capacity of 400 seats at a cost of $20 million.
- When high school capacities reached 100% in a school impact fee district, the model assumed a high school expansion would be provided with a capacity of 400 seats at a cost of $24 million.

The analysis of future demand yielded the results shown below for the first ten years (2008-2017) and the remaining 8 years (2018-2025) of the study period (Table 11-3). The results are from the Base Case Scenario 1, which is based on the BMC Round 7a Forecasts. Other scenarios analyzed assumed additional growth and thus produced additional needs.

Table 11–3 New Schools or Additions Needed to Meet 100% Utilization or Less

Schools	Years 1-10	Years 11-18	Total
New Elementary Schools	5	1	6
Middle School Additions*	1	0	1
High School Additions*	6	2	8
** Addition = 400 seats*			

Capital needs to meet future demand will be higher in certain school impact fee districts than in others. The above results are summarized below in Table 11-4 by school impact fee district for the entire 18-year period. School impact fee districts 2 and 7 would not require any new schools or additions.

Table 11–4 Capital Needs by School Impact Fee District to Meet 100% Utilization or Less

School Impact Fee District	School Capital Needs
District 1	Two new elementary schools and four high school additions.
District 3	One new elementary school, one middle school addition and one high school addition.
District 4	One new elementary school.
District 5	One new elementary school and two high school additions.
District 6	One new elementary school and one high school addition.

The Phase I Report also presented the same analysis using a school utilization rate of 120% as the point at which a new school or school addition would be required. The results are shown below in Table 11-5 for comparison. As seen, only one new elementary school (District 3) and one high school addition (District 1) are projected as being needed using a 120% utilization.

Table 11–5 New Schools or Additions Needed to Meet 120% Utilization or Less

Schools	Years 1-10	Years 11-18	Total
New Elementary Schools	0	1	1
Middle School Additions*	0	0	0
High School Additions*	0	1	1
** Addition = 400 seats*			

Capital Improvements and Costs

Using the cost factors listed above for new school construction and school expansions, the following capital costs are estimated to meet future demand on public schools from new growth in the County using the defined level of service standard of 100% utilization. Costs are estimated at $314 million over the next ten years, or a total of $392 million by year 2025.

Table 11–6 Costs to Meet School Capacity Standard of 100% Utilization or Less (x $1,000)

Schools	Years 1-10	Years 11-18	Total Cost
New Elementary Schools	$150,000	$30,000	$180,000
Middle School Additions	$20,000	0	$20,000
High School Additions	$144,000	$48,000	$192,000
Total Cost	$314,000	$78,000	$392,000

Again for comparison purposes, estimated costs are shown below assuming a level of service standard of 120% utilization or less, as opposed to 100% utilization (Table 11-7). No additional costs for new schools or expansion would be incurred over the first ten years.

Table 11–7 Costs to Meet School Capacity Standard of 120% Utilization or Less (x $1,000)

Schools	Years 1-10	Years 11-18	Total Cost
New Elementary Schools	0	$30,000	$30,000
Middle School Additions	0	0	0
High School Additions	0	$24,000	$24,000
Total Cost	0	$54,000	$54,000

This is not to suggest that the appropriate standard would be to allow all public schools to reach 120% of their State rated capacity. The purpose is to demonstrate the cost differentials in attempting to meet different level of service standards.

Fire and EMS Service

The County's Fire Department currently operates from 30 fire stations located throughout the County with nearly 800 career firefighters and over 500 certified volunteer firefighters. The Department recently completed a Fire Services Deployment Study to evaluate current demand and levels of service and assess improvements needed to meet the desired service standard.

Level of Service Standard

With regard to fire protection and EMS services, response time is the most significant factor in determining whether a department is providing adequate levels of service. National standards such as those established by the National Fire Protection Agency (NFPA) provide a reasonable means for assessing performance with regard to response times (11-8). NFPA 1710 is used by the County Fire Department as a guideline for acceptable response times.

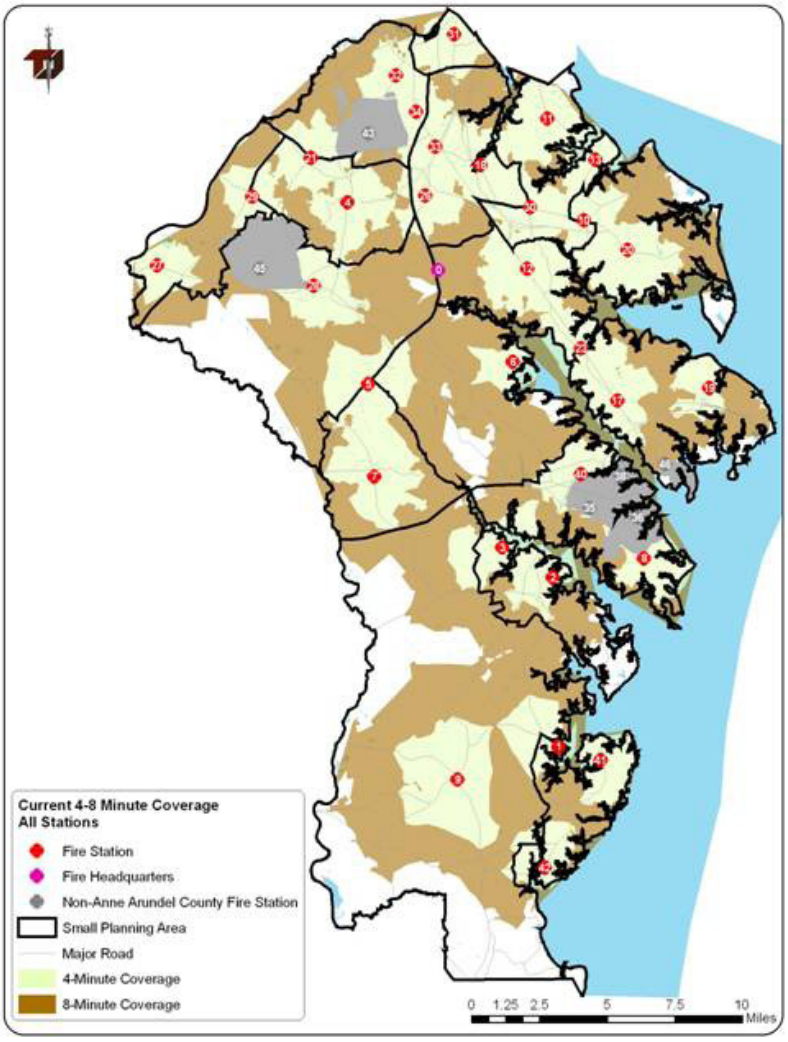
Table 11–8 NFPA 1710 Response Time Objectives

Time Segment	Response Time	Percentile
All Calls: Turnout	1:00	90
Fire Suppression		
First Arriving Engine Company	4:00	90
Full First Alarm	8:00	90
EMS		
First Responder	4:00	90
ALS Unit	8:00	90

Existing and Future Demand

An analysis of historical response data covering a 15-year period from 1992 to 2007 shows that the Fire Department is able to cover most of the County within the 8 minute response time with a first arriving engine company (fire calls) or a first responder (EMS calls) in a majority of the County, but much of the County cannot be reached within the 4 minute goal for first arriving units. Some parts of the County cannot be reached within 8 minutes. The response time coverage under current conditions is shown in Figure 11-1.

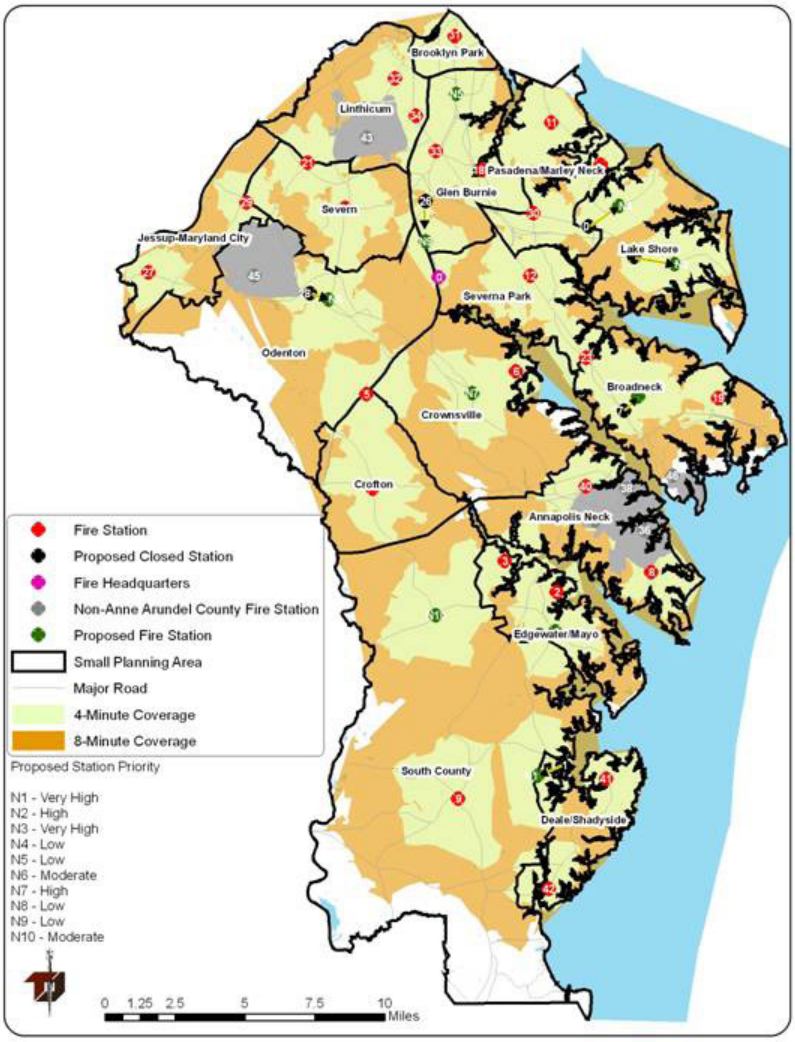
Figure 11–1 Current 4 and 8 Minute Fire Service Coverage



Further analysis indicates that the Fire Department can accommodate existing demand, improve overall response times, and reach more calls within nationally recommended standards by relocating nine of its existing stations as listed below.

- Station 17 – Arnold
- Station 6 – Herald Harbor
- Station 1 – Galesville
- Station 2 – Woodland Beach
- Station 26 – South Glen Burnie
- Station 34 – Ferndale
- Station 20 – Lake Shore
- Station 10 – Jacobsville
- Station 28 - Odenton

Figure 11–2 Proposed 4 and 8 Minute Fire Service Coverage



The Fire Department's study looked at service needs over a five-year horizon. To help assess the impact of future development on fire and EMS service, the Fiscal Impact Analysis, Phase I also estimated capital needs to provide fire/EMS service to serve additional growth for years 2008-2025. However, the Fiscal Impact Model does not have the capability to estimate response times, so a different level of service standard must be used with a model of this type. Therefore the Phase I study defined the service standard as the current level of service based on calls for service per square foot of fire station facility, and then used calls for service per capita factor to determine capacity needs related to new growth. The Base Case scenario indicated a need for 4 new fire stations, with two new stations needed in the first ten years, and two additional stations needed in the following eight years.

Capital Improvements and Costs

The Fire Services Deployment Study estimated an average cost of $3.8 million for relocation of a fire station. Therefore, capital costs would total $34.2 million to relocate 9 existing stations.

The Phase I Report estimated fire service capital costs needed to serve future growth assuming an 11,000 square foot prototype fire station at a cost of $4.5 million. The cost estimates include apparatus to support each station including a pumper/tanker and paramedic unit. Total capital costs of $20,975,000 including apparatus were estimated for the entire 18-year period to 2025. During the first ten years, capital costs of $10,190,000 were estimated.

As the County continues to grow and demand for service continues to rise, the Fire Department will need to continually evaluate population density and call volume as it relates to the 4 and 8 minute response times, with the goal of covering the vast majority of the County within a 4 minute response time. Regardless of the projected increased demand for service, without additional stations the level of service standards of 4 minutes and 8 minutes cannot be extended to a larger portion of the County. Along with an increased demand for service comes the likelihood that units may be unavailable due to being on a prior call, so that without additional units and staffing to provide coverage, response times will increase.

Stormwater Management

Anne Arundel County is comprised of 265,450 acres of various types of land use that generate varying degrees of stormwater runoff. Primarily, the amount of stormwater runoff is directly related to the amount of impervious area within each land use type. Of the 265,450 acres, approximately 46,000 are considered impervious and include both public and private development (approximately 40,000 acres are private and 6,000 acres are public). Most developed areas of the County have stormwater conveyance systems designed to manage runoff quantities by directing stormwater through pipes, roadside swales and gutters to a natural waterway. However, historic development of the County did not include stormwater quality treatment to provide the level of pollutant reduction required for new development. Nevertheless, the County has been accumulating stormwater management facilities, or best management practices (BMP's) over the last couple of decades as stormwater regulations have evolved to require water quality management. It is estimated that of the 265,450 total acres in the County, 42,000 acres are publicly owned and 6,200 acres are treated by some form of stormwater BMP.

The County's publicly owned stormwater infrastructure includes approximately: 575 miles of storm drain piping; 4,200 stormwater outfalls; 600 stormwater BMP's (dry, wet and infiltration ponds and devices); and 1,600 roadway culverts.

Level of Service Standard

Stormwater management involves the conveyance of stormwater runoff to an appropriate location so that flooding and erosion are minimized. Storm drains and other facilities are typically designed to handle a specified "design flow" based on a particular storm event. The County's APF test for stormwater management requires adequate capacity in the onsite and offsite drainage systems to convey the design flow of stormwater runoff to an acceptable outfall. This is the established level of service standard.

Existing Demand and Capital Improvement Costs

For the purpose of quantifying the existing demand on stormwater facilities, information is provided on the backlog of existing stormwater piping and infrastructure that needs replacement under the Closed Storm Drain and Culvert Program. The number and type of projects needed and associated costs are shown below in Table 11-9.

Table 11–9 Existing Stormwater Infrastructure Needs

Closed Storm Drain and Culvert Projects	Number of Projects	Cost (x $1,000)
Structures (manholes, inlets, field connections)	41,923	$7,930
Outfalls	4,131	$4,360
Pipes (3,040,000 linear feet)	4,010	$8,450
Culverts (38,000 linear feet)	440	$6,260
Total	50,504	$27,000

The backlog total includes only those hard infrastructure items associated with extending the useful life of existing storm drain infrastructure that has been deteriorating over time. There is an additional backlog of storm drain projects that are necessary to provide flood relief or drainage improvements to address areas where runoff generated from public property impacts private property. In addition, there are projects associated with road systems that were originally privately developed and owned, and have since been conveyed to the County for maintenance, that do not have adequate or sufficient drainage systems. Identifying all such instances throughout the County is not possible, requiring that the Department of Public Works track these issues on a complaint basis. At this time, it is estimated that providing storm drainage systems to only those known complaint areas would require over $18 million.

It is difficult to estimate the impact of future development and growth on stormwater management facilities. The demand for some types of public facilities, such as schools or fire protection services, can be closely related to population size, and therefore future demand and capacity needs can be estimated using per capita factors. However, stormwater runoff is a function of the type of development, the amount of impervious coverage, and the stormwater management techniques used to control runoff. New techniques that are being widely promoted such as green roofs, environmental site design, and gray water recycling can significantly reduce stormwater runoff impacts from new as well as existing development. In addition, most of the cost for installing new storm drain systems to serve new development is covered by private developers, not by the County. Therefore, the County does not have the ability to estimate growth-related costs for storm drainage over specific time periods.

There are related costs associated with capital improvements required to meet State and/or federal water quality regulations, including NPDES Permit requirements and the new TMDL standards for pollutant loads to tributaries. While this goes beyond the level of service standard defined above, it is nevertheless a real cost that is significant. Through the County's watershed planning efforts, a variety of stream restoration and stormwater management projects have been identified that would serve to improve water quality and reduce pollutant loads, and estimates have indicated that the costs to implement these projects could range from $600 million to over $1 billion. This will almost certainly require the County to consider additional revenue strategies, such as a stormwater utility, that will provide funding for these capital improvements in the future.

Long Range Capital Improvement Needs

The County's Capital Budget and Program, adopted annually, contains an itemized list of capital projects which the various agencies of the County government propose to undertake in the ensuing fiscal year and the next succeeding five fiscal years thereafter.

The procedures for formulating, reviewing, adopting and amending the Capital Budget and Program are defined in Article VII of the Anne Arundel County Charter.

As specified in Section 17-5-102(b)(3) of the County Code, limited resources require coordinated allocation of funds for roads, schools, and other infrastructure facilities. The County Executive, County Council, and all participating agencies and departments work together to review priorities and budget projections included in the Capital Budget and Program. The County Council, through adoption of the Program, approves the distribution of funds for all capital improvement plans.

The General Development Plan has projected the long range capital improvement needs to meet future demand for the specified public facilities. However, it does not replace or override the specific budgetary and fiscal procedures required by the County Charter.

The capital needs described in the above sections to meet existing demand as well as the projected demand from future development are summarized in the table below along with associated costs. Again, it is noted that these estimates are based on the levels of service defined in the previous sections.

Table 11–10 Capital Improvements to Meet Existing and Future Demand

Facility	Improvements to Accommodate Existing Demand	Cost to Meet Existing Demand (x $1,000)	Improvements to Accommodate Future Demand over Next 10 Years	Cost to Meet Future Demand (x $1,000)	Total Cost (x $1,000)
Public Roads	93 Centerline Miles of Road	$544,000	37 Centerline Miles of Road*	$180,000	$724,000
Public Schools	None	None	5 new schools & 7 school additions	$314,000	$314,000
Fire/EMS Services	9 fire station relocations	$34,200	2 new fire stations	$10,190	$44,390
Stormwater Management	Numerous individual projects	$27,000	Not estimated	Not estimated	$27,000

**Represents additional demand through year 2035.*

From a fiscal standpoint, it is unlikely that the County will be able to maintain these level of service standards for all facilities in all parts of the County without new revenue sources or strategies, and will need to prioritize capital facility needs and funding to maximize cost effectiveness and efficiency. The current fiscal situation is discussed in more detail in the Fiscal Impact Study Phase II Report (2008), which indicates that there are significant backlogs in the County's Capital Budget that will be extremely difficult if not impossible to alleviate without additional funding sources or reduced levels of service. Funding sources currently available as well as some potential new revenue strategies that could be considered are discussed in the following sections and in more detail in the Phase II Report.

Existing Funding Sources

Capital funding for the public facilities discussed in this chapter are generally from three major revenue sources: the County's General Fund; impact fees for roads, schools and public safety services; and State and federal grants. The County's General Fund support for these public facilities includes both direct cash contribution (pay-as-you-go financing) and payment of debt service on County bonds (bond financing).

Potential Revenue Strategies

To address the capital needs identified in the previous sections, new and enhanced revenue sources will need to be considered. Several potential revenue mechanisms were analyzed in the Phase II Report and are discussed in this section:

- Income Taxes
- Transfer and/or Recordation Taxes
- Property Taxes
- Special District Property Tax
- Local Sales and Service Taxes
- Hotel/Motel Tax
- Bonds
- Impact Fees
- Excise Taxes
- Charges for Service and Other Fees
- Utilities (for Stormwater and Transportation)

Income Taxes

The County's current income tax rate is 2.56 percent of net taxable income with FY08 budgeted revenues of $369 million. The State maximum allowable rate is 3.2 percent. According to the latest (FY08) survey by the Maryland Association of Counties, only two counties have a rate that is lower than Anne Arundel's (Talbot and Worcester) and two are at the maximum rate of 3.2 percent (Howard and Montgomery). Of the 20 remaining counties, eight are above 3 percent.

In Anne Arundel County, it is estimated that an increase of 0.25 percent would yield an estimated $36 million; an increase of 0.5 percent would yield an estimated $72 million; and at the maximum allowable rate of 3.2 percent (an increase of 0.62 percent), the increase in revenue is estimated at $92 million. This revenue is significant not only because of the potential to use it for PayGo capital expenditures, but because of the additional debt this revenue could support. Based on level annual principal and interest payments assuming a 6 percent interest rate and a 20-year term, an additional $36 million annually could support approximately $400 million in additional debt. However, as discussed under the Bonds section below, the County's existing debt guidelines would need to be modified to support this endeavor. Order of magnitude revenue estimates are provided below in Table 11-11.

Table 11–11 Potential Revenue Yield from Change to Income Tax Rate

Income Tax	Rate (%)	FY08 Estimated Revenue Yield	Net Increase Over Current
Current	2.56%	$368,700,000	
Increase of 0.25%	2.81%	$404,700,000	$36,000,000
Increase of 0.5%	3.06%	$440,700,000	$72,000,000
Max Allowable (Increase of 0.64%)	3.20%	$460,900,000	$92,200,000

Transfer and/or Recordation Taxes

Anne Arundel County currently levies both Transfer and Recordation Taxes. The County's Transfer Tax is currently 1 percent of the value of the property transaction with a FY2008 revised budget amount of $38 million. Four counties in the State have rates higher than 1 percent (Baltimore, Montgomery, and Prince George's counties and Baltimore City) with two at 1.5 percent. An increase of 0.5 percent would yield an estimated additional $19 million annually. Order of magnitude revenue estimates are provided below in Table 11-12.

Table 11–12 Potential Revenue Yield from Change to Transfer Tax Rate

Transfer Tax	Rate (% of value)	FY08 Estimated Revenue Yield	Net Increase Over Current
Current	1.00%	$38,000,000	
Increase of 0.25%	1.25%	$47,500,000	$9,500,000
Increase of 0.5%	1.50%	$57,000,000	$19,000,000

The County's Recordation Tax is at a current rate of $3.50 per $500 value of the property transaction. Eight counties have rates above $3.50 per $500, with six of those with rates of $5 or higher. If the rate were to increase by $0.50, estimated additional revenues are $6 million; an additional $1.00 would yield an estimated $12 million; and an additional $1.50, bringing the rate to $5 per $500 in value, would yield approximately $18 million. Order of magnitude revenue estimates are provided below in Table 11-13.

Table 11–13 Potential Revenue Yield from Change to Recordation Tax Rate

Recordation Tax	Rate (per $500 in value)	FY08 Estimated Revenue Yield	Net Increase Over Current
Current	$3.50	$42,000,000	
Increase of $0.50	$4.00	$48,000,000	$6,000,000
Increase of $1.00	$4.50	$54,000,000	$12,000,000
Increase of $1.50	$5.00	$60,000,000	$18,000,000

It should be noted that to be conservative, the above estimates have been derived using the revised Fiscal Year 2008 revenue estimates (per the FY09 Budget) as the base year estimate. Given current real estate and financial market conditions, the short-term potential

for these revenue sources may be limited, however in the long-term these sources may be viable options to assist in addressing the backlog.

Property Taxes

Anne Arundel County is limited in its ability to raise revenues through increased property taxes by the Property Tax Revenue Limit ("Tax Cap"), approved by voters in 1992. Under the Tax Cap, property tax revenue derived from existing development cannot increase by more than the change in the consumer price index (CPI) or 4.5 percent, whichever is lower. (In FY 2008, the allowable percentage increase was based on the CPI at 2.9 percent; in FY 2009, the allowable percent was 4.5 percent.) However, property tax revenues from new development are not included in the Tax Cap, therefore increase in property tax revenues can be greater than the percentage increase discussed above. Each fiscal year, the County calculates the allowable revenue increase, compares it to the change in the County's assessable base, and determines property tax rates that maximize property tax revenue under the Tax Cap. In FY 2008, the allowable revenue increase was $13.1 million from existing development. (New development was projected to generate $5.8 million.) The tax rates were decreased because assessed values increased at a greater rate than the consumer price index.

An increase of one cent on property tax rates is estimated to yield approximately $5.5 million outside Annapolis and approximately $500,000 in Annapolis. An additional $5 million would allow for approximately $45 million additional borrowing.

Special District Property Tax

Counties are authorized to levy special district property taxes for specific services. Anne Arundel County currently uses this mechanism for subarea improvements in the County. This could be further expanded to fund significant local or regional infrastructure improvements by geographic area of the County.

However, in addition to subarea assessments, other jurisdictions in the State use this tool to finance services that are more countywide in nature. Examples include Fire District Tax in Charles, Frederick, Howard, and Montgomery counties and Stormwater or Drainage taxes in Montgomery and Prince George's counties. Rates may vary by area of the county. This tool may be an option for Anne Arundel if allowed by County and State law.

Local Sales and Service Taxes

Items under this type of tax are: telephone, energy, parking lots/boat slips. The County currently taxes telephone service, certain types of energy, and parking lots. An expansion of this category could include wireless phones, energy taxes on residential uses, and boat slips. As of FY 2008, Baltimore City and Montgomery and Prince George's counties telephone tax includes wireless devices. For illustrative purposes, Montgomery's tax is $2 per line per month with a FY08 yield of approximately $30 million (less than one percent of the operating budget). Prince George's tax is 8 percent sales tax, with a FY08

estimated yield of approximately $48 million (approximately 1.5 percent of the operating budget). For comparison purposes, Anne Arundel's current telephone tax revenue is approximately $8 million (0.7 percent of the budget).

Currently energy taxes in Anne Arundel are levied only on nonresidential properties with revenues from these taxes representing approximately 0.5 percent (less than one percent) of the General Fund budget. In comparison, some jurisdictions in Maryland charge energy taxes on residential properties as well. Those jurisdictions include Baltimore City, Montgomery, Prince George's, and St. Mary's counties. Prince George's revenue yield from these taxes represents almost 2 percent of its operating budget and Montgomery County's yield represents almost 3 percent.

Finally, given Anne Arundel's waterfront, a tax on boat slips may be an option. Per the Maryland Association of Counties, three counties currently levy this tax: Caroline, Somerset, and Wicomico. Revenue yields are relatively small from this source in these counties, representing less than 0.1 percent of each budget.

Hotel/Motel Tax

The Hotel/Motel Tax in Anne Arundel County is currently 7 percent. As of November 2007, rates in Maryland's counties range from a low of 3 percent (one county) to a high of 10 percent (one county) with the majority at between 5 and 7 percent. This revenue source is often an attractive option given that the payers are typically from outside the County. An increase to 10 percent in Anne Arundel County (based on assumptions as of Fiscal Year 2009), would generate an additional $6.3 million annually. Based on level annual principal and interest payments assuming a 6 percent interest rate and a 20-year term, this annual revenue stream could support approximately $70 million in additional debt.

Bonds

The costs developed in the Fiscal Impact Analysis do not assume any debt financing. That is, all capital costs are exactly that—the actual costs to serve growth, serve the existing base, or to correct the estimated backlog of capital needs. This is useful to show the true costs of infrastructure, however, it is not necessarily realistic in that the County will issue debt to finance a portion of these costs.

The County issues General Obligation bonds, revenue bonds, installment purchase agreements (IPA) bonds, and impact fee-backed bonds. The County's debt affordability guidelines are as follows:

- Debt service as a percent of County operating revenues: 9.0%
- Amount of debt to personal income: 3%
- Amount of debt to full value assessment: 1.5%
- Amount of debt per capita: $1500

Per projections in the FY08 and FY09 budgets, the County can afford approximately $100 million in new debt per year. This level of affordability conforms to the above guidelines. The legal limit, however, imposed by the County Charter is much higher, at 5.2 percent of the assessable base or real property and 13 percent of the assessable base of personal property. As of the end of FY07, general County bonded debt was approximately $720 million, which represents approximately 21 percent of the available debt capacity.

For additional debt to be deemed affordable, additional revenue sources (such as the ones discussed in this chapter) would need to be identified and implemented and County guidelines would need to be modified. As noted above, the County is well below the legal debt limit, with additional debt capacity of over $2 billion. Additional revenue from General Fund sources (e.g., increases in income taxes or transfer and recordation taxes) or from targeted funding (e.g., implementation of excise taxes or new utilities) would provide an ongoing revenue stream to back additional debt but would likely not meet three of the four guideline measures—namely, debt to personal income, debt to assessed values, and debt per capita.

As a point of reference, an additional $1 million in annual revenues would allow for approximately $12 million in additional debt. This estimate is based on level annual principal and interest payments (i.e., principal plus interest in each year equals approximately $1 million), an interest rate of 6 percent, and a loan term of 20 years. In addition, with increases in impact fees (where appropriate; see below), this would allow for additional impact fee-backed bond capacity.

Impact Fees

Anne Arundel currently has impact fees for Schools, Transportation, and Public Safety. Impact fees, also known as development or development impact fees, are one-time payments used to fund capital improvements necessitated by new growth. Impact fees have been utilized by local governments in various forms for at least fifty years. Three requirements must be met with an impact fee: (1) Demand (or Impact)—a particular type of development causes the need for a particular type of infrastructure. (2) Proportionality—the fees are proportionate to the demand created by development for infrastructure; and (3) Benefit—the payer of the fee must receive a benefit (i.e., the construction of infrastructure for which the fees were paid that accommodates their impact on capital facilities). Other requirements are as follows:

- Impact fees can only be used to finance capital infrastructure and cannot be used to finance ongoing operations and/or maintenance costs;
- Impact fees cannot be deposited in the local government's General Fund. The funds must be accounted for separately in individual accounts and earmarked for the capital expenses for which they were collected; and
- Impact fees cannot be used to correct existing infrastructure deficiencies.

In November 2008, the County Council passed Bill 71-08 which amended the County's impact fee schedule for Roads, Schools, and Public Safety (Police and Fire). The feasibility of implementing a Stormwater impact fee was also studied but was not included in the adopted legislation. Regular updates to the impact fee program are important to ensure the above requirements are met and that new growth is paying its fair share of capital improvements. The newly-adopted increase in the impact fee rate structure will increase the net surplus created by new growth, thus freeing up revenues to address the costs to correct the backlog infrastructure needs.

In addition to the abovementioned categories, other categories may be appropriate for impact fees in Anne Arundel County such as Parks and Recreation, Libraries, Detention Facilities, Transit, and County Facilities. These facilities will be impacted by growth and impact fees could be used to help pay for necessary facility expansions. The Phase I Fiscal Analysis projected growth-related costs (over 18 years) for these categories under the growth assumptions of the Base Case Scenario (Scenario 1) as well as potential non-local funding. Projected costs are shown below in Table 11-14.

Table 11–14 Other Potential Impact Fee Categories

Category	Cumulative (18 yrs) Costs to Serve Growth (Base Case Scenario)	Estimated Non-Local Funding	Shortfall
Recreation & Parks	$36,000,000	$18,000,000	$18,000,000
Library	$994,000	$0	$994,000
Detention Facilities	$5,925,000	$0	$5,925,000
County Facilities	$8,250,000	$0	$8,250,000

Recreation and Parks growth-related capital needs include park development, parkland acquisition, and trail development; non-local funding is assumed from the State's Program Open Space program. Library growth-related expenditures under the Base Case Scenario include only expansion of the collections and materials. Faster growth scenarios projected a need for additional library space (under current level of service standards). Detention Facilities represent the cost for expanded jail space based on current service levels, and County Facilities reflect Human Service and General County facility space needs also based on current service levels. Impact fees could address this shortfall, which would then free up other funds to be used for backlog infrastructure costs.

Excise Taxes

Similar to impact fees, excise taxes are one-time revenues often used to fund infrastructure improvements. Excise taxes typically differ from impact fees in that they are primarily a tool for raising revenue, as opposed to a land use regulation (i.e., an exercise of local government police power) designed to finance growth-related facilities. In addition, excise taxes typically do not have to be earmarked or segregated or accounted for separately

from a locality's general revenue, do not have to specifically benefit new growth, and can be used and calculated in a more flexible manner than impact fees. Excise taxes can be applied in several ways. Some communities apply a rate to the construction value of the land use; others use a flat fee per acre of development, while other communities apply a straight fee by type of housing unit or per square-foot.

In Maryland, a number of counties have Excise Taxes instead of Impact Fees and one, Frederick County, has both impact fees and excise taxes.[1] In Frederick County, impact fees are assessed for Schools and Libraries, and an Excise Tax is collected for Roads. Frederick County's "Building Excise Tax" was passed in 2001 and is used for PayGo and Debt Service for roads, bridges, and highway capital projects. The rates are assessed per gross square foot of development. The County has collected approximately $2 million per year on average from its Building Excise Tax.

The use of excise taxes for capital improvements such as transportation is an attractive option because of the flexibility and fewer requirements relative to impact fees. Anne Arundel County would need to obtain authority from the Maryland General Assembly to enact an excise tax and would have to alter its impact fee program. This may not be an attractive option for transportation given the recent efforts to update the County's fees. However, other non-impact fee infrastructure categories may be feasible (e.g., stormwater, parks).

Charges for Service and Other Fees

The County should continue to ensure that charges for service, fees, and other user-generated revenues are current and updated regularly. As of Fiscal Year 2009, a new Ambulance Transport Fee has been enacted and other fees have been increased to recoup costs of service provision (updated fees are: Health, Permit and Review, and Recreation and Parks). In addition, charges to Enterprise Funds have been increased to adequately cover applicable retiree health costs, and applicable Solid Waste transfer station host fees have been transferred back to the General Fund. These changes have resulted in an estimated increase of $14.8 million to the General Fund.

Charges for service and fees that are intended to cover all or a portion of the costs to provide services should be updated annually using a cost index to account for inflation. This approach is beneficial to keep pace with rising personnel and operating costs as well as to prevent "sticker shock" when fees are updated after several years.

1 *Excise taxes and impact fees in Maryland tend to be somewhat interchangeable with some excise tax enabling legislation requiring impact fee-type standards. Since authority is granted by the Maryland General Assembly, requirements differ from county to county. As of FY 2006, Maryland counties with Excise Taxes are: Calvert, Caroline, Carroll, Charles, Dorchester, Frederick, Howard, Montgomery, Prince George's, and Washington (Maryland Local Government: Legislative Handbook Series Volume VI, 2006; Maryland General Assembly Department of Legislative Services).*

Utilities (for Stormwater and Transportation)

Stormwater Management

As discussed above, backlog improvement costs for stormwater management are significant, with $45 million estimated for backlog needs in culverts and storm drains. In order to continue to achieve NPDES permit compliance in the County's twelve watersheds as well as address new TMDL limits discussed in Chapter 10, stormwater management costs are likely to increase in the future. The County is currently conducting analysis with its Watershed Management Tool in order to help project future costs related to stormwater management.

One potential funding option is a Stormwater Utility. Stormwater utilities are becoming more common nationally as most stormwater problems are due to existing development rather than new development, as is the case in Anne Arundel County. Therefore capital funding tools like impact fees become less desirable to deal with the significant costs that have accrued over time. A Stormwater Utility could operate like a sewer or water system with annual charges levied to customers that would then be used to fund necessary improvements to the stormwater management system. The rates could be assessed based on the amount of impervious surface area on the payer's property or per equivalent dwelling unit. Incentives could be developed as part of the system that would encourage property owners to better manage stormwater runoff. Jurisdictions in Maryland that have a stormwater utility are the Cities of Takoma Park and Rockville, and Montgomery County.

Transportation

Another potential candidate for a utility is transportation. While utility charges for water and sewer facilities have been widely used since the beginning of the 20th century, on-going charges for transportation represent a relatively new application of the utility concept. The establishment of a utility to address transportation needs allows funding of capital improvements but also could include operations and maintenance. Utility charges may address all cost aspects, including debt service, operation, maintenance, repair and replacement of facilities. Unlike impact fees that are imposed on new development, utility revenue would be generated from all development, existing and new. Unlike impact fees, which have a relatively unstable revenue stream based solely on the amount and timing of new development, utility charges have a stable and secure revenue stream that enables the issuance of bonds backed by the anticipated utility revenue.

Evaluation of Revenue Strategies

The potential revenue strategies discussed above have been evaluated according to a defined set of evaluation criteria. The evaluation criteria include:

- Revenue Potential
- Proportionality
- Technical Ease
- Public Acceptability

All criteria listed above are evaluated for each potential financing source and provide a framework for discussion of alternative approaches. It should be noted that this discussion does not include a legal review, which should be conducted before implementation to determine whether appropriate authority exists as well as limitations and requirements. The evaluation criteria listed above are described in more detail as follows:

Revenue Potential: This evaluation criterion addresses the relative magnitude of funding from each financing mechanism.

Proportionality: This evaluation criterion relates to striking a balance between the tax or fee burden being considered relative to the demand generated. For example, communities sometimes choose to require developer contributions or exactions for growth-related facilities because the public perception is that existing residents are unfairly paying the costs of new growth. In another example, in order to a make a school impact fee "roughly proportionate and reasonably related to service demands," the fee should vary by type of housing unit as each housing unit generates a different number of school age children.

Technical Ease: Each of the potential revenue strategies requires some technical expertise and administrative effort to implement. They may require, for example, that additional accounting and reporting requirements are necessary. Furthermore, a funding mechanism may require that a technical study be prepared to justify the fee or charge.

Public Acceptability: This evaluation criterion often varies by jurisdiction and the type of facility to be funded. It reflects how the majority of existing residents are expected to accept each financing or planning mechanism.

Results of Evaluation

A general evaluation is presented below in Table 11-15 of the potential revenue strategies using the four main criteria discussed above.

Table 11–15 Evaluation of Potential Revenue Strategies

Revenue Strategy	Revenue Potential	Technical Ease	Proportionality	Public Acceptance
Income Taxes	High	Positive	Negative	Negative
Transfer and/or Recordation Taxes	High/Moderate	Positive	Negative	Negative
Property Taxes	Moderate	Positive	Negative	Negative
Special District Property Tax	High/Moderate	Neutral/Negative	Positive/Neutral	Negative
Local Sales and Service Taxes	Moderate	Neutral	Negative	Negative
Hotel/Motel Tax	High/Moderate	Positive	Negative	Positive
Bonds	High	Neutral	Negative	Negative
Impact Fees	High/Moderate	Negative	Positive	Positive
Excise Taxes	High	Negative	Positive/Neutral	Positive
Charges for Service and Other Fees	High	Positive	Positive	Positive
Utilities (for Stormwater and Transportation)	High	Negative	Positive	Neutral

Revenue Potential

The mechanisms with the greatest potential for revenue yield are income taxes, transfer and recordation taxes, impact fees, excise taxes, hotel taxes, charges for services and utilities. While bonds are a vehicle for financing, rather than a revenue source, it is ranked positively under revenue yield due to the potential for an influx of funds to address a portion of the costs at one time provided that debt capacity is available and it is affordable in light of County policies and guidelines. However, as noted above, a general obligation bond does not provide a new revenue source. Instead, it would have to be backed by a predictable revenue stream sufficient to support the issued debt. This could be from the increase in the income tax, hotel tax, or transfer and recordation tax rates. In addition, increased revenues due to an increase in impact fees or implementation of an excise tax could also be used to back additional debt for the facilities for which those fees or taxes were collected. Finally, revenue bonds could be a possibility in conjunction with implementation of a utility.

Impact fees are ranked high to moderate in revenue yield due to the County's recent effort to update the fees. However, current fees as implemented are not capturing the full cost of growth (for transportation and public safety) according to the Phase I analysis. In addition, other infrastructure categories such as Parks, Libraries, Detention Facilities, and County Facilities are not included in the impact fee program and those facilities will have growth-related capital needs in the future. Updating and adding to the fee program would greatly enhance the revenue potential.

A Special District Property Tax is ranked high to moderate with several caveats. If used for local or sub-County purposes, the revenue potential is likely low. However, if a County-wide tax is allowed under current County and State law, this could be a significant source for a specific purpose thus freeing up other General Fund monies.

A Hotel/Motel tax is also ranked high to moderate in revenue yield. An increase in the rate from 7 to 10 percent would yield an estimated $6.3 million to the General Fund.

Technical Ease

Most of the mechanisms shown are currently used in the County, therefore continuation should not present technical or implementation issues (identified as "positive" impact above). Implementation of new sources such as excise taxes, new utilities, and special property tax districts would likely present initial technical and administrative issues and are therefore ranked negative in this category. However, ongoing administration would be similar to existing programs and should not present additional burdens.

Proportionality

In terms of proportionality, impact fees, excise taxes, charges for service, special district taxes, and utilities generally relate the amount paid to the direct impact on facilities. The proportionality decreases for special district taxes with larger geographic areas (e.g., countywide), however the tax rate would be based on costs to provide services or facilities, thus maintaining some proportionality. Excise taxes are ranked positive to neutral because the calculation and use of funds is dependent on enabling authority and program design. In some cases, the excise tax functions like a tax with the amount not necessarily derived from a rigorous analysis and revenues deposited in the General Fund. In other cases, an excise tax may function more like an impact fee, with similar requirements with regard to proportionality. The remaining mechanisms are ranked as negative. Income taxes, transfer and recordation taxes, property taxes, local sales and service taxes, hotel tax, and bonds are based on applicable values—income, property, goods, or services—and not necessarily reflective of benefit received or demand placed on the facility.

Public Acceptance

Typically, revenue sources that rank high on proportionality also tend to rank high on public acceptance (and even more so when those sources are directed toward new residents and businesses). Therefore, impact fees, excise taxes, and charges for service tend to be ranked high on public acceptance. Impact fees and excise taxes place costs of growth on new development and therefore are often supported by existing residents. Furthermore, impact fees and excise taxes should be met with high public acceptance to ensure that new growth pays its way and existing revenue sources can be spent on addressing infrastructure backlog. Charges for service may also garner support because those paying are receiving a direct benefit and the payment assessed is

Impact fees, excise taxes, and charges for service tend to be ranked high on public acceptance.

proportionate to the benefits received. Hotel taxes typically receive local support because payers are usually from outside the County.

The other mechanisms are rated either negative or neutral. While utilities and special districts are derived for specific purposes and targeted to those receiving the benefits, the magnitude of the infrastructure needs in Anne Arundel County is likely to require implementation on existing development Countywide. However, with these mechanisms, rates and fees would likely vary by area of the County or service to reflect needs, thereby reinforcing the proportionality and perhaps increasing public acceptance.
The other revenue sources (income, transfer and recordation, property, and local sales and service taxes) are all ranked negative due to their impact on existing residents and in particular residential development. There is likely to be very little, if any, public support for these options especially in the short-term due to the current economic and housing downturn. However, long-term solutions are needed to solve current problems. One option to garner public support may be to adopt a policy that uses the revenues generated through tax increases to pay for the infrastructure backlog improvements. While this decreases flexibility in use of funds, it may be a trade-off to realize additional revenues.

Recommendations for a Comprehensive Concurrency Management Program

As evidenced in this chapter, a significant amount of time, data and analysis is required to project public facility needs, future demand and capacities, capital costs and available funding, particularly for a jurisdiction as large as Anne Arundel County. While this type of analysis is not new to the County and many of the necessary tools are available, it has often been done in a somewhat piecemeal fashion in the past, with strategic planning or facilities planning studies being conducted by individual agencies as opposed to using a more comprehensive approach.

A comprehensive framework for concurrency management will facilitate the process of evaluating and prioritizing public facility needs and will aid decision makers in allocating funds in the most efficient way possible during each annual budget process. The County is currently taking several steps to develop tools and/or methodologies that will assist in this effort. These include the following:

- The County currently tracks building permits (PIPS) and development activity (STS) in separate databases, which are not linked spatially to the property geodatabase (cadastral layer). Once the property geodatabase is brought up to current conditions and can then be maintained, the databases can be linked and tracking of development activity will be made easier, and can be used by all County agencies to track and measure impacts. The property geodatabase will allow a more comprehensive method of analysis and a means to track cumulative effects of development.

- The Reasarch & GIS Division in the Office of Planning and Zoning will produce an Annual Growth Report (to be released at the end of the fiscal year) along with the Annual Development Activity Impact on School Facilities Report that is currently released in January of each year.
- The Fiscal Impact Model developed for the Phase I and Phase II Fiscal Impact Analysis will be obtained by the County and staff will be trained in its use. It will then become an in-house tool that can be used to project capital needs under various growth scenarios as forecasts are updated periodically.
- The Fire Department has obtained the software developed for the Fire Services Deployment Study along with training in its use. This tool will enable the Department to input population information, service call data, and County infrastructure such as roads in order to project future service demand and allocate resources to meet acceptable response parameters.

Along with these tools and methods, the County currently has modeling capabilities with its Countywide Traffic Model and its Watershed Management Tool that can be used to estimate future demand on public roads and stormwater management facilities as well as impacts from mitigation measures and related costs.

The "pieces" of this framework have been used to the extent possible and allowable, within the GDP timeframe, in presenting the information in this chapter. However, it is recognized that additional efforts are needed to develop a more comprehensive approach.

It is recommended that the County set up a framework that consolidates the different methodologies outlined in this chapter into a comprehensive analytical approach for tracking development impacts on public facilities and planning for adequate future capacity and the funding to maintain it. It is important that the demand analysis be linked with the specified level of service standard that is to be maintained for each public facility. It is equally important that the level of service standards be fiscally feasible so that service providers, as well as the public, are not given unrealistic expectations.

Once this comprehensive framework has been established, the analysis should be conducted at appropriate intervals to account for changes in growth projections, land use policies, infrastructure capacities, and other changes that will impact public facilities and levels of service. The County could then issue a Concurrency Management Report on a biennial basis, or some other appropriate timeframe, for use in long range facilities planning as well as annual budget decisions. A report published at regular intervals would be a more useful tool than a requirement to incorporate such analysis as a component of the GDP. Because the GDP is a broader based policy plan, it should not require the level of analytical detail that is needed for a full concurrency analysis, but should instead use the Concurrency Management Reports to formulate new GDP policies as needed during updates.

Chapter 12: Implementation Plan

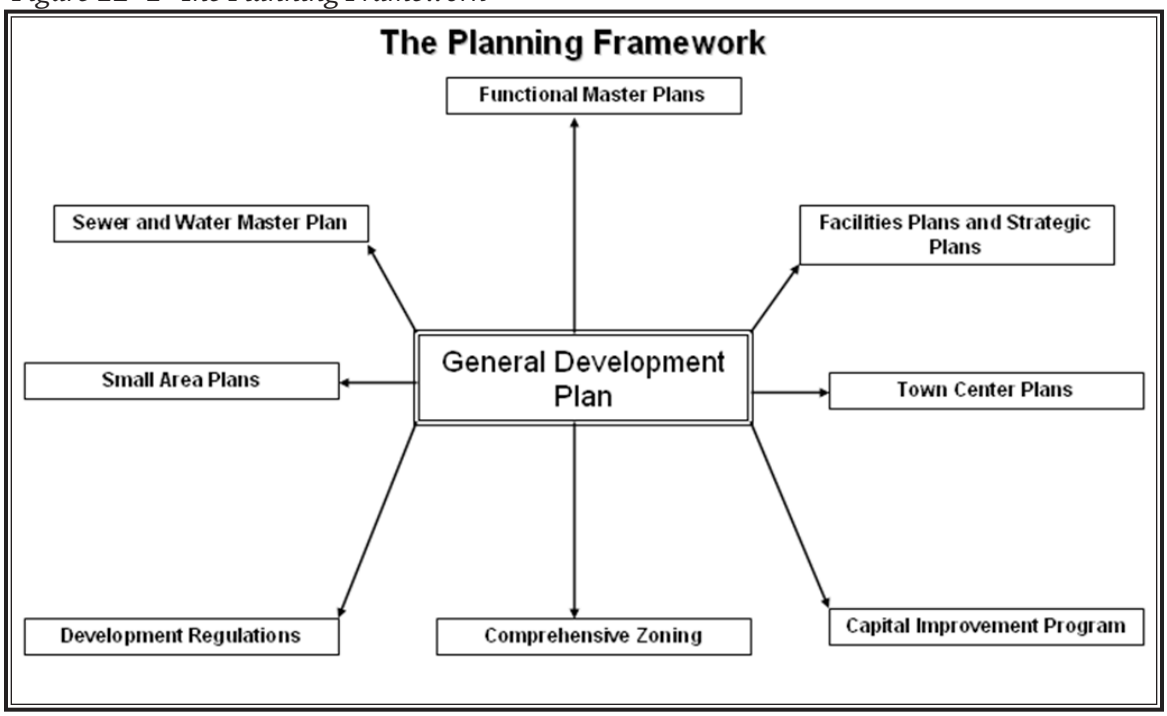
The General Development Plan recommends a broad range of actions to accomplish the goals and policies established in the Plan. In most cases, implementation of the GDP actions will take place over a few to several years and will involve multiple players in the process. Some action items will become ongoing, multi-year programs that will require dedicated County resources on a continual basis. In other words, implementation of the GDP cannot be accomplished in a few steps as a short-term project, but instead requires a long-term commitment and many resources.

A plan for implementation of the GDP will be established that includes a prioritization of the recommended action items, as well as a recommended timeframe for completing them. This will serve to identify those actions that should be accomplished in the near term and those that will be longer range needs. The implementation plan will also identify the County departments or agencies that have primary responsibility in carrying out each action.

The GDP and the Overall Planning Framework

Chapter 1 described the County's overall planning framework and its key components as related to land use, development, and public facilities. As summarized in Figure 12-1 below, these components include Town Center Plans, Functional Master Plans, and Small Area Plans in addition to regulations, legislation such as comprehensive zoning, and the Capital Budget and Program.

Figure 12–1 The Planning Framework



The GDP is sometimes viewed as the "centerpiece" of this framework, since it contains many broad policies that will influence other plans and/or regulations or will be incorporated

into other plans and regulations. Although the GDP serves in this centerpiece role, it does not "amend" the various other plans adopted by the County unless specifically stated in the GDP or the adopting legislation. Each plan within this framework serves as a standing planning document that will continue to be used until it is either amended or updated, or removed from the County Code as a component of the framework. In cases of conflict, the most recently adopted plan, or plan component, would govern. As an example, the Land Use Plan Map in the GDP will supersede any previously adopted Land Use Plan Maps in other documents, such as the Small Area Plans, but the individual recommendations in the Small Area Plans and other adopted plans will continue to be implemented.

As other components of the planning framework are updated in the future (e.g. Sewer and Water Master Plan, development regulations) and new components are created and/or adopted (e.g. Transportation Functional Master Plan), they will need to be consistent with and support the goals and policies of the GDP. This is often one of the most challenging aspects of plan implementation in a large jurisdiction that has multiple plans and regulations that are frequently being revised or updated. In other words, the planning process is often considered a moving target, and frequent monitoring of the various planning components for consistency is required.

Methods of Implementation

The action items recommended in the GDP will be implemented through a variety of methods or mechanisms. These implementation methods have been grouped into six major categories, as described below. The County will assign each action item to an implementation category to aid in tracking progress in the future.

Resource Inventory and Management: This category includes actions such as developing a database of properties under Forest Conservation easements or updating the County's floodplain layer. It can also include the identification of land or other resources for specific purposes, such as preservation, acquisition, or mixed use development.

Planning Initiatives or Studies: This category includes the development of new programs such as a Neighborhood Conservation Program, the development of new planning documents such as a Transportation Functional Master Plan, as well as the feasibility studies or other background research required to develop these new programs or initiatives.

Financial Strategies: Actions in this category include the pursuit of funding mechanisms and financial strategies to carry out Plan recommendations, such as developing new financial incentives for commercial revitalization or agricultural preservation.

Legislation and Regulations: Revisions to existing subdivision and development regulations, creation of new overlay districts, adoption of development design standards, and adoption of new mixed use zoning districts would all fall into this category.

Public Information Initiatives: This category includes public outreach and education to inform the public of current or new programs and/or tools that further the goals of the GDP, such as the promotion of business opportunities, preservation programs, grant programs, and conservation easements.

Capital Improvements: This includes specific projects or public facilities such as transportation infrastructure, school renovations, or park facilities that will require capital funding through the Capital Budget and Program or through partnerships with State agencies or private entities.

Plan Administration

Administration of the General Development Plan involves a collaborative effort among the County Administration and staff, the County Council, and various advisory boards or commissions. The roles and responsibilities of each are described below.

County Council and County Executive

The County Executive and County Council are responsible for determining the priorities among the recommended actions in the GDP and for establishing timeframes for accomplishing them. They are also responsible for ensuring that the resources needed for implementation are available, including capital and/or operating funds, staffing resources, and other programmatic needs. As the County's legislative body, the County Council adopts the GDP as well as the Capital Budget and Program and other legislation as needed to implement Plan recommendations.

Planning Advisory Board

The Planning Advisory Board (PAB) is responsible for reviewing all amendments and updates to the General Development Plan and forming recommendations for consideration by the Planning and Zoning Officer, the County Executive, and the County Council. The PAB is also tasked with the annual review of the proposed Capital Budget and Program prior to County Council adoption.

County Departments

Many County departments and offices will be involved in administering the GDP and implementation plan. A number of GDP action items will require new or revised work tasks or programs be incorporated into the overall operating program of various County agencies. The Offices of Planning and Zoning, Law, and Budget as well as the Departments of Public Works, Inspections and Permits, Recreation and Parks, and Health will have major involvement in plan administration, but many other local agencies will contribute to implementation of the Plan. Coordination among the various departments is required in order to achieve the goals and objectives established in the Plan.

Interagency Coordination

Intergovernmental coordination is another important requirement for successful implementation of the GDP. Water resources protection, emergency preparedness, and

transportation needs are regional issues, and local planning efforts and programs must be coordinated with regional and Statewide efforts. In some cases, the availability of State or Federal funding for programs or infrastructure is contingent upon this intergovernmental coordination among the State and local jurisdictions. In addition, the City of Annapolis and the County are required to coordinate plans and programs related to growth management, annexations, transportation services, public safety services, public utilities, and other public services.

Implementation Schedule

Table 12-1 presents an Implementation Schedule for accomplishing the recommended actions in the 2009 General Development Plan. The schedule will serve as a tool for tracking progress as well as a guide in establishing priorities for the County's capital and operating budgets. The Implementation Schedule contains the information described below.

Column 1: Priority

1 – Very High Priority – use all available resources and obtain necessary resources to accomplish this within the indicated timeline.

2 – High Priority – use available resources to accomplish within the indicated timeline.

3 – Priority – accomplish within the indicated timeline or extend timeline as resources become available.

Column 2: Action Items

Recommended actions are listed by Chapter in the approximate order that they appear in the GDP. Some related actions have been combined into one line item.

Column 3: Agencies

This identifies the principal agencies to implement the action item. Many action items will require interagency coordination and work efforts among several agencies, so every agency that may be involved may not be listed. In many cases, elevated assistance will be required from support agencies such as Finance or Information Technology in order for the operating departments to meet the established schedule.

Agencies are abbreviated as follows:

AACC – Anne Arundel Community College
ACDS – Arundel Community Development Services Inc.
AAFD – Anne Arundel County Fire Department
AAPD – Anne Arundel County Police Department
AEDC – Anne Arundel Economic Development Corporation
BOE – Anne Arundel County Board of Education

DBED – MD Department of Business and Economic Development
DF – Anne Arundel County Department of Detention Facilities
DHCD – MD Department of Housing and Community Development
DIP – Anne Arundel County Department of Inspections and Permits
DNR – MD Department of Natural Resources
DOA – Anne Arundel County Department of Aging
DOH – Anne Arundel County Department of Health
DPW – Anne Arundel County Department of Public Works
DRP – Anne Arundel County Department of Recreation and Parks
LAW – Anne Arundel County Office of Law
LIB – Anne Arundel County Libraries
MAA – Maryland Aviation Administration
MDE – Maryland Department of Environment
MDOT – MD Department of Transportation
MHT – Maryland Historical Trust
MTA – MD Transit Administration
OB – Anne Arundel County Office of Budget
OCS – Anne Arundel County Office of Central Services
OEM – Anne Arundel County Office of Emergency Management
OPZ – Anne Arundel County Office of Planning and Zoning

Column 4: Timeline
Arrows are used to indicate the implementation timeframe.

Action item to be completed within the indicated time.

Action item is currently being done and will continue to be pursued.

Progress Management and Tracking

The County will use the Implementation Schedule to itemize and prioritize the action items in the GDP as well as to track and record progress made. Many local and State agencies, civic groups, community activists, developers, and individual property owners are interested in the General Development Plan implementation process. Therefore, progress will be regularly reported in the form of Implementation Status Reports which will be made available to the public. These Status Reports will summarize actions underway or completed, and will also recommend any interim changes or amendments needed to facilitate implementation of the GDP. The County will coordinate the Status Reports with the new State annual reporting requirements for local comprehensive plans as adopted during the 2009 legislative session. These requirements will become effective in 2011.

Table 12–1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
Chapter 3 Balanced Growth													
2	Use incentives such as financing tools and expedited development review to encourage growth in targeted growth areas.	OPZ, AEDC	→	→	→	→	→	→	→	→	→	→	→
2	Strengthen marketing programs to attract developers and businesses to targeted areas by preparing a comprehensive inventory of available sites, incentives, and amenities.	OPZ, AEDC	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →
2	Prioritize the Capital Program to promote adequate public facilities and infrastructure necessary to support development in targeted growth areas.	OB, OPZ, DPW	→	→	→	→	→	→	→	→	→	→	→
2	Use legal and financial tools such as TIFs and developer agreements to enable private-public partnerships that provide future development guarantees in return for substantial investments in necessary infrastructure where the County's Capital Program is insufficient to support new development.	OPZ, AEDC, LAW	→	→	→	→	→	→	→	→	→	→	→
2	Consider designating Special Tax Districts in targeted growth areas for infrastructure improvements.	OPZ, AEDC	→	→									
1	Identify key infill opportunity sites in the PFA for appropriate land uses.	OPZ	→	→									
2	Encourage infill development in County's PFAs through financial incentives or revisions to development regulations.	OPZ, AEDC			→	→	→	→	→	→			
1	Identify additional mixed use opportunity areas and develop mixed use concept plans in order to provide more workforce housing and "live near your work" opportunities.	OPZ	→	→									
1	Assess the potential to shift some of the existing industrial land base west and north of BWI Airport to mixed use categories for TOD opportunities.	OPZ	→	→									
3	Maintain an inventory of brownfield sites and provide financial incentives to leverage private sector investment.	MDE, OPZ, AEDC			→	→	→	→	→	→			

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
3	Monitor the status of the U.S. Army Depot site, the DC Children's Center site, the David Taylor Naval Research Center site, and the Crownsville Hospital site, and work with State and/ or Federal officials to identify suitable redevelopment opportunities.	OPZ, AEDC	----	----	----	----	----	----	----	----	----	----	----→
3	Review all County and BOE surplus properties, to determine whether there is a need to retain the property for public use.	OCS	----	----	----	----	----	----	----	----	----	----	----→
3	Convert County's surplus property to preserved open space or recreational space where appropriate and inform local land trusts of surplus properties in environmentally sensitive areas.	OPZ, DRP	----	----	----	----	----	----	----	----	----	----	----→
1	Track development holding capacity regularly and update the holding capacity inventory at appropriate intervals.	OPZ	----	----	----	----	----	----	----	----	----	----	----→
1	Plan for adjustments in fiscal policies and revenue strategies as the County matures and approaches the limits of its development capacity.	OB	----→										
1	Develop an ongoing methodology to better integrate strategic and facilities planning with the County's long range land use planning and capital programs.	OB, OPZ	----→										
1	Develop a comprehensive concurrency management program in order to track the impact of new growth on public facilities and infrastructure and to ensure adequate facilities will be in place to serve new growth as well as the existing population base.	OB, OPZ	----→										
1	Evaluate all potential new revenue strategies to address existing budget backlogs in public facility maintenance and improvements.	OB	----→										
2	Implement a proactive business development plan to encourage the location of new companies.	AEDC	----	----	----	----	----	----	----	----	----	----	----→
3	Partner with Anne Arundel Workforce Development Corporation and Arundel Community College to address workforce development needs of the existing business community and provide adequate technical training.	AEDC, AACC	----	----	----	----	----	----	----	----	----	----	----→

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
3	Work with local employers to provide job training and readiness programs as well as support services such as child care and transportation.	AEDC											
3	Provide business finance assistance to existing businesses through County and State agencies.	AEDC, DBED, ACDS											
1	Focus economic development efforts toward development of the Odenton Town Center.	AEDC, OPZ											
1	Identify opportunities for additional industrial sites, particularly for new defense industry and research facilities, located in proximity to major roadways and other multi-modal transportation assets.	AEDC, OPZ											
3	Provide services and support such as assistance with preparing business plans to the entrepreneurial, small and minority business community, and promote business incubator concept.	AEDC, DBED											
2	Expand the agricultural economic development and marketing program to promote rural economy land uses in designated rural areas.	AEDC, DRP											
1	Study the feasibility and applicability of an Airport Environs Overlay Zoning District around BWI airport.	OPZ, MAA											
2	Assess the supply and demand of age-restricted and senior housing opportunities.	OPZ											
2	Evaluate alternative forms of inclusionary housing programs.	ACDS, OPZ											
2	Develop additional financial and development incentives for the provision of workforce housing.	ACDS, OPZ											
2	Create a Housing Trust Fund with a dedicated funding source to provide financing to improve, preserve and increase the workforce housing stock.	ACDS											
2	Promote greater use of Commercial Revitalization Tax Credits and flexible uses in Revitalization Districts to allow for inclusion of workforce housing.	OPZ, ACDS, AEDC											

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
3	Continue to utilize existing programs and develop new incentives to encourage rehabilitation of existing housing.	ACDS, OPZ											
3	Continue to develop opportunities to partner with the State and private lenders to create new financing tools to assist with first time homeownership.	ACDS, DHCD											
3	Determine the feasibility of adaptive reuse of commercial buildings, County owned and BOE surplus properties for workforce housing.	ACDS, AEDC, BOE											
1	Pursue the acquisition of additional land for preservation. Target properties in the Greenways network, the Rural Legacy Area, in high priority subwatersheds, and other areas suitable for passive recreation or natural resource protection.	DRP, DPW											
2	Acquire and retain land for preservation to offset future land use and zoning intensification.	DRP, OPZ											
2	Partner with local land trusts to increase promotion and marketing of preservation mechanisms.	DRP, OPZ, DNR											
Chapter 4 Community Preservation													
1	Refine the boundaries of existing Commercial Revitalization Districts. Identify new Commercial Revitalization districts and incorporate them into the Zoning Ordinance.	OPZ											
2	Develop a stronger marketing program to increase participation in the Commercial Revitalization Program and to encourage redevelopment and reuse of vacant and underutilized buildings and sites.	OPZ, AEDC											
2	Develop a work program to market redevelopment concepts and opportunity sites to attract redevelopment. Use Urban Design Studies program and Business Corridor Investment Loan Program to develop concepts and design guidelines, and incorporate design guidelines into the Commercial Revitalization legislation as needed.	OPZ, AEDC											
3	Promote the use of volunteer/community service projects to maintain cleanliness in commercial revitalization areas.	OPZ											

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
1	Establish criteria to be used in defining a neighborhood as unique, distinct or historic for purposes of establishing a Neighborhood Conservation District program.	OPZ	→	→									
1	Based on established criteria, identify neighborhoods or communities that qualify as a Neighborhood Conservation district.	OPZ	→	→									
2	Establish a community outreach process to be used in developing Neighborhood Conservation criteria, standards, and districts.	OPZ			→	→							
2	Establish objectives and design standards applicable to designated Neighborhood Conservation Districts.	OPZ			→	→	→	→					
2	Develop legislation to create Neighborhood Conservation overlay districts and associated design standards and/or guidelines.	OPZ			→	→	→	→					
2	Develop Rural Area design guidelines to apply to new development in the Rural Agricultural district and incorporate them in the County's development regulations.	OPZ			→	→	→	→					
2	Determine the viability of a transferable development rights (TDR) program as an alternative approach to preserving rural areas.	OPZ			→	→							
1	Assess the feasibility of adopting a local historic preservation tax credit and/or property tax abatement program to encourage the retention and adaptive reuse of historic buildings.	OPZ, MHT	→	→									
1	Revise subdivision regulations to allow historic property lots to be created without counting towards the allowable density of a subdivision, given that the historic property is retained and protected by easement.	OPZ	→	→									
1	Develop and adopt stronger penalties for intentional destruction of historic resources.	OPZ	→	→									
1	Assess the need for additional code provisions and policies for cultural resource protection.	OPZ	→	→									

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Evaluate the Scenic and Historic Roads regulations and establish new criteria applicable to development on these roads as needed.	OPZ	→	→									
2	Develop local incentives to encourage property owners to pursue National Register of Historic Properties nominations.	OPZ, MHT			→	→							
3	Partner with the Agricultural Preservation Program to incorporate historic and archaeological resource protection into cultural resource protection efforts.	OPZ, MHT, DRP	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
2	Improve recordation and tracking procedures for maintaining an up-to-date and accurate inventory of historic properties and easements in the county.	OPZ, MHT	→	→									
3	Support and participate in the Maryland Heritage Areas Program to provide additional funding sources and tax incentives.	OPZ, MHT	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
3	Develop preservation plans for historic and cultural resources on County owned properties.	OPZ, MHT	→	→	→	→	→	→	→	→	→	→	→
2	Provide funding for educational and community outreach programs and the County Archaeological Lab facility for historic preservation programs.	OPZ, MHT	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
3	Develop educational programs and tours of historic sites in the County by partnering with State and nonprofit agencies and maximize use of volunteers to assist with cultural resources research and site documentations.	OPZ, MHT	→	→	→	→	→	→	→	→	→	→	→
Chapter 5 Environmental Stewardship													
1	Complete Round 1 physical, chemical and biological assessments for all streams within the County.	DPW	→	→	→	→	→	→					
2	Re-evaluate water quality monitoring as needed for affected streams that were previously evaluated as part of required monitoring for County restoration projects.	DPW	→	→	→	→	→	→					
2	Maintain and update the County's impervious and Landcover GIS coverage and refine the pollutant loading model as needed.	OPZ, DPW	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
1	Assess all stream reaches and subwatersheds within the County and prioritize them for restoration and preservation.	DPW	→	→	→	→	→	→					

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
1	Develop and update the current and ultimate development stormwater and septic pollutant loadings at the subwatershed scale for all watersheds in the County.	DPW	→	→	→	→							
1	Identify potential restoration/preservation opportunities and conduct cost/benefit studies to assess the effectiveness of implementation in meeting TMDL regulatory requirements, and develop restoration plans.	DPW											→
2	Use the County's Watershed Management Tool and watershed assessment data to review stormwater management plans and flood studies associated with development projects and zoning applications.	OPZ, DPW			→	→	→	→	→	→	→	→	→
2	Utilize information and results from watershed assessment work to recommend revisions or enhancement to the County's stormwater management standards, codes, and regulations.	OPZ, DPW	→	→									
2	Use the Watershed Management Tool to track forest cover in each watershed with a goal of preventing the loss of forest cover. Use the State's recent Stormwater Management Act to create more opportunities for forest conservation.	DPW, OPZ, DIP	→	→	→	→	→	→	→	→	→	→	→
2	Work with MDE to develop assessment methods and protocols for effective watershed implementation plans	DPW	→	→	→	→							
1	Work with MDE to determine the source of high bacteria levels in local waterways and to reduce and eliminate the sources.	DPW, DOH	→	→	→	→							
3	Participate in the Tributary Strategies teams.	DPW, MDE, DNR	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →
1	Evaluate current stream buffer requirements in the Stormwater Design Manual for further expansion either Countywide or in select subwatersheds	OPZ, DPW	→	→									
2	Evaluate the possibility of requiring a fee to be paid and placed in a natural resource restoration fund, when approving modifications in sensitive areas.	OPZ	→	→									

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Consider revisions to development regulations that would disallow modifications to forest conservation requirements or stream buffer requirements in high priority subwatersheds.	OPZ, DPW	→										
2	Consider use of County reforestation funds to purchase environmentally sensitive properties for protection.	OPZ, DIP	→										
3	Use FEMA's updated Digital Flood Insurance Rate Maps, when available, to review and refine the OS (Open Space) zoning district Countywide	OPZ			→								
3	Explore participation in FEMA's Community Rating System.	OPZ			→								
1	Review and update if necessary, the steep slopes criteria in the County. Consider a definition of steep slopes as 15% or greater if slopes occur within 100 feet of a stream	OPZ, DPW	→										
3	Identify wetland sites for mitigation banking and establish a County wetland bank. Develop additional programs for wetland creation and enhancement.	DPW, OPZ, DNR			→								
3	Provide for more rigorous enforcement of wetland protection in development areas.	DIP, OPZ	→										
1	Develop a Jabez Branch Overlay Zone and incorporate regulations into the Subdivision Code.	OPZ, DPW	→										
2	Evaluate whether environmental overlay zones should be established for other subwatersheds in the County in addition to the Jabez Branch.	OPZ, DPW			→								
2	Develop a set of criteria or standards to be used in evaluating modification requests that impact sensitive areas such as stream buffers, wetlands, and floodplains, and incorporate them into the subdivision and development code as appropriate.	OPZ, DPW	→										
2	Track the status of properties in the greenways network, and prepare periodic status reports on additional land acquisitions or conservation easements within the greenway.	DRP, OPZ	→										
2	Priortize properties for the purpose of targeting funds for greenways acquisition.	DRP, OPZ, DPW	→										

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Encourage the placement of greenways into permanent conservation easements.	DRP, OPZ	→	→	→	→	→	→	→	→	→	→	→
3	Establish a proactive outreach program to "market" the Greenways Plan by working with local land trusts and other environmental groups.	DRP, OPZ, DNR	→	→									
3	Encourage cluster development and conservation easements when development occurs on properties in the greenways network.	OPZ	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
3	Use forest mitigation banks to promote reforestation, greenways protection, and good forest management practices.	OPZ, DIP			→	→	→	→	→	→			
2	Modify forest conservation regulations to improve the effectiveness of mitigation and to achieve preservation of continuous and connected hubs and corridors of forested areas.	OPZ, DIP	→	→									
2	Develop a database of properties protected under Forest Conservation easements and develop a more comprehensive approach to forest conservation.	OPZ, DIP			→	→	→	→					
3	When reviewing proposed development in areas designated for mixed use or transit-oriented development, in town centers and in other designated growth areas, ensure that adequate protection is provided for the County's green infrastructure, non-tidal wetlands, wildlife refuges and forested areas in order to retain a high quality of life, preserve water quality, and maintain such areas as desirable places to live.	OPZ	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
3	Locate incompatible uses at an appropriate distance from specific sources of air pollution.	OPZ	→	→	→	→	→	→	→	→	→	→	→
3	Provide air quality data and methods to improve air quality on the County website and encourage all public schools to integrate air quality improvement into the curriculum.	OPZ, BOE	→	→	→	→	→	→	→	→	→	→	→
3	Amend the County's noise ordinance to incorporate the authority given to the County by the State of enforcing noise standards and regulations.	OPZ			→	→							

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
3	Assess current noise regulations, evaluate existing highway noise buffers and consider buffers on additional roads, airports, and railways.	OPZ, DPW			→	→							
2	Update existing mining operations and current reclamation plans and ensure that site reclamation plans for active sites comply with the Land Use Plan.	OPZ	→	→	→	→							
3	Use mining reclamation to increase recreational and open space uses in the County.	OPZ, DRP	→	→	→	→							
3	Inventory and map potential areas for future mineral extractions.	OPZ	→	→	→	→							
2	Evaluate developing a Green Building Program that would require all new construction to be LEED certified, and provide incentives for those developments that achieve a higher level of LEED standard. In addition, evaluate the provision of tax incentives for existing buildings that achieve a higher level of LEED standard.	OPZ, DIP	→	→	→	→							
2	Promote education and provide incentives for existing homes and business owners to use green building practices.	OPZ, DIP	→	→	→	→	→	→	→	→	→	→	→
Chapter 6 Quality Public Services													
2	Prioritize the BOE capital budget and program to efficiently utilize school space and encourage BOE to use funding and redistricting options to maintain the most efficient and equitable use of school capacity.	BOE	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢
1	Revise the mitigation section of the Adequate Public Facilities code to allow private funding of school facilities through the development approval process.	BOE, OPZ	→	→									
3	Consider requiring all new school construction and school renovations to incorporate green building features and/or meet LEED standards.	BOE	→	→	→	→							
3	Formulate additional joint use schedules at school sites to enhance the community's use of public facilities.	BOE, DRP	→	→	→	→							
3	Formalize an agreement to utilize Senior Centers for community recreation purposes when space is available.	DOA, DRP	→	→	→	→							

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
3	Promote connectivity to existing and/or planned recreational spaces through the subdivision and site plan process.	OPZ, DRP											
2	Assess current and future needs for local community centers.	DRP, ACDS											
1	Acquire approximately 850 additional acres of land for active recreation projects.	DRP											
1	Upgrade existing parks and develop new parks in accordance with the Land Preservation, Parks, and Recreation Plan and with new initiatives identified in the Department of Recreation and Parks Capital Improvement Program. Continue to use Program Open Space and other State and Federal programs and grants as available to implement these projects.	DRP											
2	Prepare a master plan for use of the Naval Academy Dairy Farm property in Gambrills.	DRP											
2	Complete an inventory of sites in the County that provide public waterfront access and identify future sites as needed to increase public access.	DRP											
1	Complete expansions of the North County and Annapolis Area Libraries to meet projected needs.	LIB											
3	Increase the efficiency of library services by reviewing operations including hours of service.	LIB											
1	Allocate funds to expand environmental health and school health programs.	DOH, BOE											
2	Expand public health programs serving low income residents.	DOH, ACDS											
3	Partner with Anne Arundel Medical Center and Baltimore Washington Medical Center to present programs on health and wellness issues.	DOH											
3	Identify sites with development or redevelopment potential for senior housing that are located near needed amenities, and work with developers to provide a range of housing options for senior citizens.	DOA, OPZ, ACDS											

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Address additional space needs at the Brooklyn Park Senior Center and complete planned expansion of the Pasadena Senior Center.	DOA	→	→	→	→	→	→					
2	Ensure that new development and redevelopment conforms to current ADA and FHA Fair Housing regulations.	DIP, OPZ	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢
2	Provide public transit services and accessible housing units for persons with disabilities.	DOA, OPZ, MTA	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢
2	Provide administrative relief for unique issues related to accommodating accessibility to structures and pedestrian systems for seniors and persons with disabilities.	OPZ	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢
2	Make necessary plans to establish at least 3 additional police posts, or patrol beats.	AAPD	→	→	→	→							
3	Recruit and retain highly qualified professionals for public safety positions.	AAPD, AAFD, OEM	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢
1	Continue to promote integrated emergency management among all County agencies through the Emergency Operations Plan.	OEM	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢
1	Promote education and training of local citizens to serve as volunteers during emergencies and disaster relief efforts.	OEM	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢	⇢
2	Make plans as needed to establish a fifth police district in the county and identify a future site for a fifth District Station.	AAPD	→	→									
2	Identify future sites for a new Criminal Investigation Division police facility and a new Police Training Academy.	AAPD	→	→									
2	Allocate funds as needed to implement the recommendations of the Fire Station Location Study completed in 2008.	AAFD	→	→	→	→	→	→					
1	Plan and fund needed expansions at the Ordnance Road and Jennifer Road Detention Centers.	DF	→	→	→	→	→	→					

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
1	Partner with the MD Department of Natural Resources to develop an integrated planning strategy that addresses potential threats in areas vulnerable to sea level rise impacts.	DPW, OPZ, OEM											
1	Develop a strategic plan for a phased implementation response to achieve either avoidance or reduction of sea level rise impacts to property, infrastructure, cultural and natural resources.	DPW, OPZ, OEM											
1	Establish policies to guide the relocation, extension or expansion of public infrastructure in at-risk areas.	DPW, OPZ											
2	Continue to participate in regional planning efforts to monitor and protect groundwater resources.	DPW, DOH											
2	Continue assessment of water quality problem areas.	DPW, DOH											
3	Improve educational efforts for water conservation.	DPW											
2	Continue to evaluate alternatives at Water Reclamation Facilities that will redirect existing and future flows to service areas where facility sites can best support future upgrades and meet capacity demands and permit requirements.	DPW											
3	Develop and implement a multi-faceted approach to education and promotion of recycling within the County to convey the importance as it relates to the preservation of natural resources and the County's landfill.	DPW											
2	Continue to promote and expand recovery of recyclables at the landfill and convenience centers.	DPW											
2	Maximize existing landfill capacity through efficient operation.	DPW											
3	For future undeveloped disposal areas, evaluate new engineering technologies and operational techniques that could lead to expanded capacity and site life.	DPW											
3	Explore opportunities to address solid waste disposal and recycling needs on a regional basis.	DPW											

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Continue to implement a County wide marketing campaign challenging all residents to recycle 50% of their waste, and evaluate the service delivery system on a regular basis.	DPW	→	→	→	→							
2	Conduct a study of former landfill sites to confirm their current status, and to assess their current and future suitability for development. Develop a Closed Landfills Map.	OPZ, MDE	→	→	→	→							
2	Amend the development and permit applications review procedures for properties located on or adjacent to former landfill sites, and require applications to be sent to MDE, Health Department and DPW for review and comments.	OPZ, DIP	→	→	→	→							
1	Evaluate the County's long-term landfill needs to assess the impacts of restricting future landfill locations. If feasible, revise the Zoning Ordinance to remove rubble landfills as an allowable use in the RA zoning district.	OPZ, DPW	→	→									
Chapter 8 Priority Preservation Areas													
2	Conduct a detailed development capacity analysis to determine the number of individual properties within the PPA that have remaining development rights to sell and that are eligible to participate in an existing agricultural preservation program.	OPZ, DRP	→	→									
2	If the inventory of eligible properties within the PPA that have remaining development rights to sell is small, determine whether revisions can be made to existing programs that would increase the number of eligible properties.	OPZ, DRP	→	→									
2	Revise the Agricultural and Woodland Preservation Program regulations to increase participation and make it more competetive with market forces.	OPZ, DRP	→	→									
2	Revise the Preservation Easement Purchase Priority Rating System to grant extra points to properties located in the Priority Preservation Area.	OPZ, DRP	→	→									
2	Increase the Preservation Easement Value from 60% of fair market value of fee simple land to 70%.	OPZ, DRP	→	→									

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Revise the permitted uses on an agricultural easement property to include accessory uses on minimal acreage that will not interfere with farming operations, as well as other rural economy uses.	OPZ, DRP	→										
2	Consider revisions to the Zoning Ordinance to remove Planned Unit Development (PUDs) as a special exception use in designated Rural Areas.	OPZ	→										
Chapter 9 Transportation Plan													
2	Update and revise the County's Design Manual and appropriate sections of the Subdivision Regulations to incorporate context sensitive design requirements for roadways.	DPW, OPZ			→								
2	Establish street design criteria as per State law to support alternative transportation modes.	DPW, OPZ			→								
2	Establish LOS standards based on planned land uses and densities.	DPW, OPZ			→								
2	Combine management of both fixed route County-operated services with the fixed route, demand-response and specialized transit operated by the Department of Aging and Disabilities.	OPZ, DOA			→								
1	Identify and protect an alignment to extend the Baltimore Light Rail Yellow Line from the BWI Business Park Station to the Dorsey MARC Station.	MTA, OPZ			→								
1	Complete a feasibility study to add a MARC Penn Line station in the vicinity of MD 100, with road access, parking, pedestrian/bicycle facilities, and bus transit connections.	MTA, OPZ			→								
1	Implement the recommendations for bus transit found in the Transit Development Plan and provide the landside infrastructure necessary to promote transit use.	MTA, OPZ	- - - →										
1	Obtain the capital assets necessary to operate fixed route and demand-response bus transit.	OPZ	- - - →										
2	Facilitate development in the vicinity of existing and planned transit nodes through improved access and parking.	OPZ	- - - →										

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Require use of TDM strategies to reduce vehicle trips generated by new development as a condition of mitigation.	OPZ	→	→									
3	Accessibility to airports provided by surface transportation facilities should be maintained, and as necessary, improved.	OPZ, MTA, MDOT	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
3	Implement specific cost effective programs for County employees where they are appropriate, such as priority parking spaces for carpoolers, subsidizing transit passes, flexible work schedules, and telecommuting.	OCS			→	→	→	→	→	→			
3	Review existing land use codes and regulations and provide incentives for development that reduces the number of vehicle trips.	OPZ			→	→	→	→	→	→			
3	Identify larger private sector employers and work with them to implement TDM programs through ARTMA and BWI Business Partnership.	OPZ, AEDC			→	→	→	→	→	→			
3	Prepare a comprehensive study of Park and Ride lots to assess supply, demand, and improvements needed.	OPZ, MTA			→	→	→	→	→	→	→		
1	Prepare and adopt a Transportation Functional Master Plan (TFMP).	OPZ, DPW, MTA, MDOT	→	→	→	→	→	→					
1	Identify the purpose and need to conduct a highway corridor study of US 50/301 between Prince Georges County and Queen Anne's County.	OPZ, MDOT		→									
2	Study feasibility of transit, including bus transit and rail transit, along corridors as identified in the GDP and TFMP. Identify locations for intermodal centers.	OPZ, MTA			→	→	→	→					
2	Conduct feasibility study for the extension of light rail to other areas of the County.	OPZ, MTA			→	→	→	→	→	→			
2	Study the feasibility of adding stations on the commuter rail line.	OPZ, MTA			→	→	→						
1	Revise the Impact Fee Program to allow a portion of transportation impact fees to be dedicated for expansion or improvements to public transit	OPZ			→	→	→	→	→				

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Identify underserved neighborhoods and population groups and evaluate them for the potential inclusion in the transit system.	OPZ, MTA			→	→	→	→	→				
2	Conduct a traffic and transportation workshop annually to update the public on conditions and proposed improvements.	OPZ, DPW, MTA			→	→	→	→	→	→	→	→	→
2	Encourage high occupancy vehicle (HOV) lanes, carpooling, flexible work schedules, telecommuting, subsidized transit passes, and stricter parking controls as means to reduce traffic congestion.	OPZ, DPW, MTA			→	→	→	→	→	→	→	→	→
2	Consolidate transportation activities into one department providing a single agency to deliver transportation services to the County.	DOA, OPZ			→	→	→	→	→	→			
2	Develop a program for prioritizing the maintenance of existing pedestrian facilities and secure funding sources for its implementation.	DPW			→	→	→	→	→	→			
2	Monitor progress in implementing the pedestrian-related goals and objectives of the Bicycle and Pedestrian Master Plan on an annual basis.	DPW, OPZ, DRP	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
2	Include transit shelters in neighborhoods and business developments along designated routes.	OPZ, MTA			→	→	→	→	→	→			
2	Identify publicly owned properties in the vicinity of transit stations that could be used for joint public/private development.	OPZ, MTA			→	→	→	→	→	→			
2	Support efforts to configure or re-configure street patterns so as to improve traffic flow and turning movements in balance with safety considerations and its impact to build environment.	DPW, OPZ	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
2	Establish street design criteria to both support and eliminate conflicts between alternative transportation modes. Update road design standards for all road functional classifications.	DPW, OPZ			→	→	→	→					
2	Seek funding for circulation and safety improvements needed to improve traffic level of service.	OPZ, DPW	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Incorporate integration of emergency evacuation route planning when designing or redesigning and constructing transportation facilities.	OEM, DPW, OPZ											
Chapter 10 Water Resources Plan													
1	Complete ENR upgrades at Water Reclamation Facilities per MOU with MDE.	DPW											
2	Study the ability to increase treatment capacities at Water Reclamation Facilities using the "bubble permit" concept.	DPW											
2	Identify weaknesses in pipe infrastructure and explore the development of a more reliable power back-up solution for pumping stations.	DPW											
1	Develop a short and long-term strategic plan for implementing the recommendations from the OSDS Study to address problem septic areas.	DPW, DOH, OPZ											
2	Apply for funding through the State's Chesapeake Bay Restoration Fund program to implement the OSDS strategies.	DPW											
2	Update the map of Onsite Wastewater Management Problem Areas in the Water and Sewer Master Plan to reflect most current information.	DPW, DOH, OPZ											
2	Explore additional funding techniques that can be used for community connections to public sewer or installation of private community systems in known problem septic areas.	DPW											
2	Identify communities served by onsite septic systems that are currently problem septic areas, and areas with a high potential to generate significant pollutant loads from septic systems, and amend the Water and Sewer Master Plan to include these areas in the Planned Sewer Service category.	DPW, DOH, OPZ											
2	Determine whether the use of denied access sewer lines is warranted in those cases where extension of public sewer is the best alternative to address problem septic areas, and incorporate provisions into the Water and Sewer Master Plan if needed.	DPW, OPZ, DOH											

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Add problem septic area communities to the PFA where possible so they will be eligible for BRF grants.	OPZ	→	→	→	→	→	→					
3	Provide public information regarding the importance of regular maintenance to septic systems.	DOH	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →	- - →
2	Develop a more streamlined petition process for community connections to public sewer to address problem septic areas.	DPW	→	→	→	→	→	→					
2	Evaluate the feasibility of code revisions to require all new or replacement private septic systems to utilize the latest standards for denitrification.	DPW, DOH, OPZ	→	→									
2	Develop additional data layers and input needed to model and assess the effectiveness of existing and future stormwater management practices in reducing nonpoint source pollutant loads.	DPW, DIP	→	→	→	→							
2	Complete and maintain a database of all privately and publicly owned and maintained stormwater management facilities.	DPW, DIP	→	→	→	→	→						
3	Conduct field monitoring to assess the effectiveness of current stormwater management practices in reducing nonpoint source pollutants.	DPW, DIP	→	→	→	→	→						
3	Evaluate alternatives to improve, enforce, and fund long-term inspection and maintenance programs of both private and public stormwater management facilities.	DPW, DIP	→	→	→	→	→	→					
3	Secure condition assessment data and maintenance schedules for all privately and public owned stormwater practices. Incorporate the data within the Watershed Management Tool.	DPW, DIP	→	→	→	→	→	→					
3	Update standards and specifications for innovative stormwater management practices based on lessons learned from inspection, maintenance, and monitoring.	DPW, OPZ, DIP	→	→	→	→	→	→					
1	Revise the County's Stormwater Practices and Procedures Manual to address new requirements of the State's 2007 Stormwater Management Act and to incorporate specific criteria for environmentally sensitive site design.	DPW, OPZ, DIP	→										

Table 12 -1 Implementation Schedule

Priority	Action Item	Agencies	Timeline										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020>
2	Develop strategies to promote Green Building technology to reduce stormwater runoff loads to local tributaries. Evaluate the Code to make sure that Green Building technologies are not impeded by existing code requirements.	DPW, OPZ, DIP	→	→									
2	Provide incentives to promote the use of permeable paving surfaces in new developments and redevelopment to decrease stormwater runoff.	DPW, OPZ, DIP	→	→									
2	Explore the possibility of increasing the requirement from 20% to 50% for treatment of impervious area on redevelopment sites.	DPW, OPZ, DIP	→	→									
1	Develop design guidelines for the Regenerative Coastal Plain Outfall and Wetland Seepage system and incorporate it into the County's Stormwater Design Manual.	DPW, OPZ, DIP	→										
2	Consider the use of tax credits to encourage soft tidal edge erosion control techniques such as marsh planting.	DPW, OPZ, DIP	→	→									
1	Explore the use of a stormwater utility fee on impervious surface areas.	DPW, OPZ, DIP	→	→									

Appendix A

Table Appendix–A 2009 Land Use Plan Map Changes

Map Area	TM/Parcels/Lots	Location	2004 Land Use Plan	Current Zoning	Acres in Area of Change	Proposed Land Use	Comments
1	TM 3, Parcel 2 (lot 2), 22, 28, 30 (lots 1, 2), 31 (lot 1), 32 (lot 1), 33, 139 (lot 1), 154 (lot 1), 177 (lots 8, 9, 10, SWM01, SWM02), 178, 188, 189 (lots 1, 11), 221 (lot 1R)	SW Quadrant of W. Nursery Road and Winterson Road	Industrial	W1	80	Employment Mixed Use	Redevelop Airport Square office park as a mixed use development to create live/work opportunities along this employment corridor.
2	TM 3, Parcels 181, 148, 58, 35, 137, 173, 176, 101, 267, 50, 106, 49, 260, 261, 120, 121, 138, 155, 277, 106, 51, 187, 202, 15, 52, 232, 53, 192, 54, 250, 214, 216	Along Ridge Road east of BW Parkway	Industrial	W1	300	Transit Mixed Use	Promote mix of residential, office and retail uses near the BWI Amtrak / MARC station, BWI Airport, and major employment centers.
3	TM 8 – Parcels 532, 9, 555, 418, 513, 514, 511, 217, 222, 223, 219-221, 216, 526, 213, 194, 225, 166, 440, 224, 205, 226, 230, 236, 227, 437, 242	Along Amtrak Line between MD 100 and MD 176	Industrial	W3/ W2	110	Transit Mixed Use	Site is under study for location of a future MARC station along the Penn Line. Promote development of a TOD center.
4	TM 13, Parcels 44, 45, 46, 61, 69, 71, 100, 132,133, 164, 166, 167, 168, 169, 175, 176, 177, 179,180 (lot2), 180 (lot3), 181, 205, 263	Clarks Hundred Properties, Southwest quadrant of BW Parkway and MD 175	Mixed Use Residential	MXD-R	210	Employment Mixed Use	Developers have planned an expansion of National Business Park on this site. Current need is for primary component of the development to be office park as opposed to residential.

Map Area	TM/Parcels/Lots	Location	2004 Land Use Plan	Current Zoning	Acres in Area of Change	Proposed Land Use	Comments
5	TM 13, parcels 8, 12, 20, 26, 28, 29, 171, 173, 182	Clarks Hundred Properties, Southwest quadrant of BW Parkway and MD 175	Residential Low Density, Government / Institutional	R1	58	Employment Mixed Use	Developers of Clarks 100 want to add this acreage into their site development plan for an extension of National Business Park. Will eliminate land-locked parcels between MD 295, Clarks 100, and National Business Park.
6	TM 20 - P. 1, 7, 8, 16, 27-31, 37, 40, 42-45, 48, 53, 55, 70-71, 78, 80, 82, 94	South side of MD 198, east of BW Parkway	Commercial, Industrial	C4 /W1	400	Commercial Mixed Use	Desirable location for mixed use development with residential uses near major employment centers including Fort Meade, National Business Park, and Odenton.
7	TM 14, part of P. 631	Van Bokkelen Elementary School site, Reece Road	Government / Institutional	OS	10	Low Density Residential	A portion of this BOE property is planned for development of a community/ health center under ownership of a non-profit agency. It will require a future rezoning from OS to a Residential zone that will permit the proposed use.
8	TM 16, Parcels 225 (part 2 of 2), 499, 317 Lot 7	Long Hill Road on north side of MD 100	Low Density Residential	R1	26	High Density Residential	Property is suitable for increased residential development. It abuts MD 100 and is adjacent to existing high density residential and commercial property. (Amendment No. 7)

Map Area	TM/Parcels/Lots	Location	2004 Land Use Plan	Current Zoning	Acres in Area of Change	Proposed Land Use	Comments
9	TM 41, Parcel 97	1011 Skidmore Drive	Rural	RA	0.70	Commercial	Property fronts on US 50 and abuts commercial uses. Support future commercial use of property. (Amendment No. 8)
10	TM 38, Parcel 175 & Parcel 26, Block 207, Lots 1-9	Ridgely Road, Palisades on the Severn	Low Density Residential	MA2	3	Maritime	Existing marina is zoned for light commercial marina use. (Amendment No. 9)
11	TM 13, Parcel 158	Southwest Quadrant MD 175 and Brock Bridge Road	Low Density Residential & Small Business	R1 / SB	47	Industrial	Property is suitable for industrial uses. It is adjacent to Clarks Hundred Mixed Use development and abuts the Maryland House of Correction. (Amendment No. 10)
12	TM 14, Parcels 111, 112, 165, and 335	Northwest Quadrant MD 175 and Ridge Road	Low Density Residential	R1 / R2	114	Medium Density Residential and Commercial	Property is suitable for increased residential development and community retail use. It is near Fort Meade and existing and planned employment uses and is in the PFA. (Amendment No. 11)
13	TM 8, Parcels 36, 195, 255, 256, 257, 268, 520, L.SH26 F.518	Wright Road at SE Quadrant of MD 295 & MD 100	Industrial & Low-Medium Density Residential	W1 / R5	44	High Density Residential	Allow for future development of townhome/multifamily residential uses on these properties. (Amendment No. 12)
14	TM 14, Parcels 273, 274, 275	1110-1118 Reece Road, Severn	Low-Medium Density Residential & High Density Residential	R5 / R15	4	High Density Residential	Allow for higher density residential use that is compatible with adjacent residential development. (Amendment No. 13)

Map Area	TM/Parcels/Lots	Location	2004 Land Use Plan	Current Zoning	Acres in Area of Change	Proposed Land Use	Comments
15	TM 4, Parcel 111, Lots 36 to 42	White Avenue, Linthicum	Low Density Residential	R1	7	Industrial	Allow for development of office uses next to adjacent new hotels and expand industrial land base. (Amendment No. 14)
16	TM 10, Parcels 99, 374	East side of Marley Neck Blvd., west of Solley Road	Industrial	R5	18	Low-Medium Density Residential	Change Land Use category to reflect current zoning. (Amendment No. 16)
17	TM 22, Parcels 429, 430	8301 & 8307 Veterans Highway, at Brightview Drive	Low Density Residential	R2	6	Commercial	Designate these properties for future commercial use. (Amendment No. 17)
18	TM 19, Parcel 5	8436 Brock Bridge Road	Low Density Residential	R1	12	Medium Density Residential	Allow for an increased density of residential development that is compatible with adjacent residential development. (Amendment No. 18)
19	TM 27, Parcel 4	520 Brock Bridge Road, Suburban Airport site	Low Density Residential & Transportation / Utility	R1	51	High Density Residential	Allow for future development of multifamily residential uses. (Amendment No. 20)
20	TM 57A, Parcels 769, 762, 862, 863, 765, 867, 1405	915 to 939 Bay Ridge Road	Commercial & Low Density Residential	C1 / R2	3	Commercial	Designate these properties for future commercial use in their entirety to facilitate redevelopment of a local commercial center. (Amendment No. 21)
21	TM 50, Parcel 217	2691 Riva Road, Annapolis	Low Density Residential	R5	6	Commercial	Allow future commercial office uses on this property adjacent to an existing office park. (Amendment No. 22)

Map Area	TM/Parcels/Lots	Location	2004 Land Use Plan	Current Zoning	Acres in Area of Change	Proposed Land Use	Comments
22	TM 9, Parcels 47 and 57	North side of 8th Avenue, east of Penrod Court, Glen Burnie	Commercial, Medium Density Residential, and Natural Features	C3 / R5 / OS	9	Industrial and Natural Features	Change the portions of the property that are zoned for commercial and residential uses to an Industrial Land Use category. Property contains a long-standing concrete block manufacturing business. (Amendment No. 24)
23	TM 8, Parcel 212	1243 Old Dorsey Road, west of Telegraph Road	Industrial and Natural Features	W2 / OS	0.8	Industrial	Remove Natural Features land use designation from this property which is partially zoned for industrial use. (Amendment No. 25)
24	TM 14, Parcel 670	7815 Sandy Farm Road, Severn	Low Density Residential	R1	5	Industrial	Property is currently developed with an existing warehouse use. An Industrial classification would support a future zoning change to bring the use into conformance. (Amendment No. 26)
25	TM 15, Parcel 34 (Lots 1R and 5); Parcels 327 and 536; TM 14, Parcels 42, 519, 755	Sandy Farm Road and Wicker Road, south of MD 100 at Telegraph Road	Low Density Residential	R1	67	Commercial	Allow for future commercial use of properties near the MD 100 & MD 170 interchange. (Amendment No. 27)
26	TM 51, Parcels 165 and 91 (p/o Lot C)	Southwest quadrant of Admiral Cochrane Drive and MD 2	Low Density Residential	R2	8	Commercial	Support future commercial use of this property located on a major arterial highway. (Amendment No. 28)

Map Area	TM/Parcels/Lots	Location	2004 Land Use Plan	Current Zoning	Acres in Area of Change	Proposed Land Use	Comments
27	TM 8, Parcels 387, 523, 391, 392, 393, 552, 553, 395, & 618, Lot 3	7442-7482 Shipley Avenue, Harmans	Industrial & Natural Features	W2 / OS	10	Industrial	Remove Natural Features land use designation from these properties which contain industrial park uses. (Amendment No. 29)
28	TM 45, Parcel 721	708 Bestgate Road, east of Lincoln Parkway	Low Density Residential	R2	7	Commercial	Currently developed with a church. Designate the property for future commercial use. (Amendment No. 30)
29	TM 15, Parcel 370	756 Old Stevenson Road, west side of New Cut Road at I-97 interchange	Low-Medium Density Residential	R5	1	Commercial	Support future commercial use of the property located near a major highway interchange. (Amendment No. 31)
30	TM 55, Parcels 139, 140, 141	158-164 W. Central Avenue (MD 214), east of Rolling Road	Low Density Residential	R1	3	Commercial	Parcel 140 contains an existing restaurant operating as a non-conforming use. (Amendment No. 32)
31	TM 55, Parcel 123	2976 Solomons Island Road at Collison Lee Lane	Commercial & Low Density Residential	C2 / R1	2	Commercial	Eliminate split land use designation on this property to allow full commercial use. (Amendment No. 33)
32	TM 39, Parcels 168, 169, 163, 167, 170, 266	1434-1436 Ritchie Highway, Arnold	Low Density Residential	R1	6	Commercial	Designate these properties for future commercial use. (Amendment No. 36)

FINAL

AMENDED
September 21 and October 5, 2009

COUNTY COUNCIL OF ANNE ARUNDEL COUNTY, MARYLAND

Legislative Session 2009, Legislative Day No. 31

Bill No. 64-09

Introduced by Ms. Vitale, Chairman
(by request of the County Executive)

By the County Council, July 20, 2009

Introduced and first read on July 20, 2009
Public Hearing set for and held on August 17, 2009
Bill AMENDED on September 21, 2009
Public Hearing on AMENDED BILL set for and held on October 5, 2009
Public Hearing on SECOND AMENDED BILL set for and held on October 19, 2009
Bill Expires October 23, 2009

By Order: Judy C. Holmes, Administrative Officer

A BILL ENTITLED

AN ORDINANCE concerning: Planning and Zoning – 2009 General Development Plan

FOR the purpose of repealing the 1997 General Development Plan and amendments; adopting the General Development Plan dated April 2009 that consists of an Introduction and Chapters concerning Balanced Growth and Sustainability, Community Preservation and Enhancement, Environmental Stewardship, Quality Public Services, The Land Use Plan, Preservation Areas, The Transportation Plan, The Water Resources Plan, the Concurrency Management Plan, and the Implementation Plan; adopting Appendix A; making certain findings of fact and stating the legislative intent relative to the General Development Plan; amending provisions of the Zoning Article relative to the General Development Plan; and generally relating to the 2009 General Development Plan.

BY repealing and reenacting, with amendments: §§ 18-2-102; 18-2-103; and 18-2-104 Anne Arundel County Code (2005, as amended)

SECTION 1. *Be it enacted by the County Council of Anne Arundel County, Maryland,* That the County Council hereby finds that there has been established over a considerable period of time a process which has produced various plans and planning documents,

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EXPLANATION: CAPITALS indicate new matter added to existing law.
[Brackets] indicate matter stricken from existing law.
Underlining indicates amendments to bill.
~~Strikeover~~ indicates matter stricken from bill by amendment.

including the 1968, 1978, and 1997 General Development Plans and the 1986 Addendum. The County Council further finds that the General Development Plan is an official policy document that is intended to guide future growth, development, resource management and protection, and the provision of services in the County. The County Council finds that the General Development Plan is broad in scope rather than being site-specific and is intended to outline a vision of how the County will develop over the next 20 years. The County Council further finds that the General Development Plan is being updated to reflect demographic, economic, social, and environmental changes that have occurred in the County since the last General Development Plan was adopted and to establish policies and recommendations designed to guide land use decisions over a 10 to 20 year planning horizon. The Council further finds that the general Development Plan provides an opportunity to recognize and incorporate key planning policies of the State of Maryland, including two 2006 enactments, the Land Use—Local Government Planning Act (House Bill 1141), and the Agricultural Stewardship Act of 2006 (House Bill 2). In addition, the County Council finds that the 2009 General Development Plan will provide an opportunity to be more effective in managing growth and to improve the methods and types of development that may occur in the County. The County Council finds that by establishing goals, policies, and actions, the 2009 General Development Plan provides a framework for decision-making within the public and private sectors.

SECTION 2. *And be it further enacted,* That Section(s) of the Anne Arundel County Code (2005, as amended) read as follows:

ARTICLE 18 ZONING

TITLE 2. GENERAL PROVISIONS

18-2-102. Policy.

The policy of the County is to:

(1) guide and direct [the arrangement and location of uses] THE DEVELOPMENT OF LAND AND THE LOCATION OF PUBLIC FACILITIES AND SERVICES in accordance with the General Development Plan for the County;

(2) organize the concentration of population;

(3) relate density of uses to the proper locations;

(4) facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public [requirements] FACILITIES AND SERVICES;

(5) protect and preserve the Chesapeake Bay and its tributaries;

(6) protect and preserve the historic and archeological heritage of the County;

(7) promote an adequate supply of housing throughout the County with a broad range

of housing types and prices that meet the needs of citizens at different ages and stages of their lives;

(8) strengthen and revitalize existing communities and encourage the revitalization of older residential and commercial areas;

(9) promote the value of buildings and other structures;

(10) provide for the safety and promote the general welfare of the County through the protection of life and property to enhance and maintain the quality of life for all citizens;

(11) preserve agricultural land, forested and rural areas, bogs, wetlands, and floodplains; and

(12) divide the County into zoning districts of such character, number, shape, and area as are best suited to effect these policies.

18-2-103. Planning for future development.

(a) **Guides.** The following documents shall be used as a guide in the future development of land in and the location of public services and facilities by the County:

(1) the General Development Plan for Anne Arundel County dated [June, 1997, as amended by Bill No. 51-99 and Bill No. 69-99] APRIL, 2009; [and by the:

(i) Crownsville Small Area Plan dated April, 2000, as adopted by Bill No. 22-00;

(ii) Crofton Small Area Plan dated July, 2000, as adopted by Bill No. 69-00;

(iii) Deale/Shady Side Small Area Plan dated April, 2001, as adopted by Bill No. 25-01;

(iv) Annapolis, London Town, and South County Heritage Area Management Plan dated April, 2001, as adopted by Bill No. 33-01;

(v) South County Small Area Plan dated September, 2001, as adopted by Bill No. 68-01;

(vi) Broadneck Small Area Plan dated September, 2001, as adopted by Bill No. 77-01;

(vii) Edgewater/Mayo Small Area Plan dated November, 2001, as adopted by Bill No. 92-01 and amended by Bill No. 52-04;

(viii) Severna Park Small Area Plan dated January, 2002, as adopted by Bill No. 5-02;

(ix) Severn Small Area Plan dated May, 2002, as adopted by Bill No. 42-02;

(x) Greenways Master Plan dated March, 2002, as adopted by Bill No. 67-02;

(xi) Annapolis Neck Small Area Plan dated December, 2002, as adopted by Bill No. 83-02;

(xii) Pedestrian and Bicycle Master Plan dated January, 2003, as adopted by Bill No. 2-03;

(xiii) Odenton Small Area Plan dated June, 2003, as adopted by Bill No. 39-03;

(xiv) BWI/Linthicum Small Area Plan dated August, 2003, as adopted by Bill No. 48-03;

(xv) Odenton Town Center Master Plan dated November, 2003, as adopted by Bill No. 69-03;

(xvi) Jessup/Maryland City Small Area Plan dated November 2003, as adopted by Bill No. 75-03;

(xvii) Lake Shore Small Area Plan dated March, 2004, as adopted by Bill No. 16-04;

(xviii) Pasadena/Marley Neck Small Area Plan dated June, 2004, as adopted by Bill No. 46-04;

(xix) Brooklyn Park Small Area Plan dated July, 2004, as adopted by Bill No. 51-04;

(xx) Glen Burnie Small Area Plan dated August, 2004, as adopted by Bill No. 60-04;

(xxi) "Anne Arundel County 2006 Land Preservation, Parks and Recreation Plan", as adopted by Bill No. 33-08;

(2) the Glen Burnie Urban Renewal Plan, dated March, 1980, as adopted by Bill No. 30-80;

(3) the "Anne Arundel County Master Plan for Water Supply & Sewerage Systems, 2007-2010", amended and adopted by Bill No. 84-07 and as further amended by Bill No. 93-08;

(4) the "Anne Arundel County Solid Waste Management Plan, 2003 Revision", as adopted by Bill No. 35-03; and

(5) the "Parole Urban Design Concept Plan", as adopted by Bill No. 73-94, as

amended by Bill No. 87-97 and as further amended by Bill No. 117-98.]

(2) THE FOLLOWING SMALL AREA PLANS:

(I) CROWNSVILLE SMALL AREA PLAN DATED APRIL, 2000, AS ADOPTED BY BILL NO. 22-00;

(II) CROFTON SMALL AREA PLAN DATED JULY, 2000, AS ADOPTED BY BILL NO. 69-00;

(III) DEALE/SHADY SIDE SMALL AREA PLAN DATED APRIL, 2001, AS ADOPTED BY BILL NO. 25-01;

(IV) SOUTH COUNTY SMALL AREA PLAN DATED SEPTEMBER, 2001, AS ADOPTED BY BILL NO. 68-01;

(V) BROADNECK SMALL AREA PLAN DATED SEPTEMBER, 2001, AS ADOPTED BY BILL NO. 77-01;

(VI) EDGEWATER/MAYO SMALL AREA PLAN DATED NOVEMBER, 2001, AS ADOPTED BY BILL NO. 92-01 AND AMENDED BY BILL NO. 52-04;

(VII) SEVERNA PARK SMALL AREA PLAN DATED JANUARY, 2002, AS ADOPTED BY BILL NO. 5-02;

(VIII) SEVERN SMALL AREA PLAN DATED MAY, 2002, AS ADOPTED BY BILL NO. 42-02;

(IX) ANNAPOLIS NECK SMALL AREA PLAN DATED DECEMBER, 2002, AS ADOPTED BY BILL NO. 83-02;

(X) ODENTON SMALL AREA PLAN DATED JUNE, 2003, AS ADOPTED BY BILL NO. 39-03;

(XI) BWI/LINTHICUM SMALL AREA PLAN DATED AUGUST, 2003, AS ADOPTED BY BILL NO. 48-03;

(XII) JESSUP/MARYLAND CITY SMALL AREA PLAN DATED NOVEMBER, 2003, AS ADOPTED BY BILL NO. 75-03;

(XIII) LAKE SHORE SMALL AREA PLAN DATED MARCH, 2004, AS ADOPTED BY BILL NO. 16-04;

(XIV) PASADENA/MARLEY NECK SMALL AREA PLAN DATED JUNE, 2004, AS ADOPTED BY BILL NO. 46-04;

(XV) BROOKLYN PARK SMALL AREA PLAN DATED JULY, 2004, AS ADOPTED BY BILL NO. 51-04; AND

(XVI) GLEN BURNIE SMALL AREA PLAN DATED AUGUST, 2004, AS ADOPTED BY BILL NO. 60-04;

(3) THE ODENTON TOWN CENTER MASTER PLAN DATED NOVEMBER, 2003, AS ADOPTED BY BILL NO. 69-03;

(4) THE PAROLE URBAN DESIGN CONCEPT PLAN, AS ADOPTED BY BILL NO. 73-94, AS AMENDED BY BILL NO. 87-97 AND AS FURTHER AMENDED BY BILL NO. 117-98; AND

(5) THE FOLLOWING ADDITIONAL COUNTY PLANS:

(I) THE ANNE ARUNDEL COUNTY 2006 LAND PRESERVATION, PARKS AND RECREATION PLAN, AS ADOPTED BY BILL NO. 33-08;

(II) THE ANNAPOLIS, LONDON TOWN, AND SOUTH COUNTY HERITAGE AREA MANAGEMENT PLAN DATED APRIL, 2001, AS ADOPTED BY BILL NO. 33-01;

(III) THE GREENWAYS MASTER PLAN DATED MARCH, 2002, AS ADOPTED BY BILL NO. 67-02;

(IV) THE PEDESTRIAN AND BICYCLE MASTER PLAN DATED JANUARY, 2003, AS ADOPTED BY BILL NO. 2-03;

(V) THE GLEN BURNIE URBAN RENEWAL PLAN, DATED MARCH, 1980, AS ADOPTED BY BILL NO. 30-80;

(VI) THE ANNE ARUNDEL COUNTY MASTER PLAN FOR WATER SUPPLY & SEWERAGE SYSTEMS, 2007-2010, AMENDED AND ADOPTED BY BILL NO. 84-07 AND AS FURTHER AMENDED BY BILL NO. 93-08; AND

(VII) THE ANNE ARUNDEL COUNTY SOLID WASTE MANAGEMENT PLAN, 2003 REVISION, AS ADOPTED BY BILL NO. 35-03.

(b) **Rule of construction.** The adoption, amendment, or repeal of any of the documents listed in subsection (a) may not be construed to evidence or constitute a mistake in the zoning map then existing or a change in the character of any neighborhood.

(C) **Current General Development Plan supersedes other land use plans.** THE LAND USE PLAN CONTAINED IN THE 2009 GENERAL DEVELOPMENT PLAN SUPERSEDES THE LAND USE PLAN IN ANY OTHER DOCUMENT LISTED IN SUBSECTION (A).

18-2-104. Contents and review of the General Development Plan.

(a) **Definition.** In this section, "specified public facilities" means County and State roads, public elementary and secondary schools, and the capital improvements necessary to provide emergency medical services, fire suppression, and storm water management.

(b) **Contents.** The General Development Plan, referred to as a "master plan" in § 531 of the Charter, shall include the contents required by Article 66B, § 1.03, of the State Code, for the comprehensive plan of a chartered county; a [growth] CONCURRENCY management plan for protecting the quality of life in the County from the adverse impacts of new development by ensuring that public facilities adequate to support future development are in place at the time the future development occurs; and other information deemed necessary by the Planning and Zoning Officer to plan for the orderly growth and development of the County.

(c) **Concurrency management plan.** The [growth] CONCURRENCY management plan contained in the General Development Plan shall include:

(1) a level of service standards for each of the specified public facilities;

(2) a description of the existing specified public facilities and an evaluation of the existing demand on those specified public facilities, with detailed findings on the improvements to the specified public facilities necessary to accommodate existing demand at the applicable level of service standards and the costs of making those improvements;

(3) an evaluation of the impact of anticipated future development on the specified public facilities, with detailed findings on the existing capacities of the specified public facilities to accommodate future development at the applicable level of service standards and improvements to the specified public facilities necessary to accommodate future development; AND

(4) a method for measuring and tracking the impacts on the specified public facilities of development approvals, including the approval of subdivisions and the issuance of building permits, and land use decisions such as comprehensive rezonings, administrative rezonings, special exceptions, and amendments to the master plan for water and sewer[; and

(5) a long-range capital improvement program for making the improvements necessary to accommodate both existing and future development at the applicable level of service standards for the specified public facilities].

(d) **Relationship of concurrency management plan to capital improvement program.** The [long-range capital improvement program contained in the growth management plan shall:] CONCURRENCY MANAGEMENT PLAN CONTAINED IN THE GENERAL DEVELOPMENT PLAN SHALL GUIDE THE ALLOCATION OF FUNDS TO THE COUNTY CAPITAL IMPROVEMENT PROGRAM.

[(1) include at least the six years of the County's capital program and four additional years thereafter;

(2) be based on estimates of existing and potential revenues reasonably available to fund capital improvements made after considering the recommendations of the Spending Affordability Committee;

(3) include the improvements described in subsection (c)(2);

(4) describe when each improvement will occur;

(5) specify the amount of future development that each improvement will accommodate at the applicable level of service standards; and

(6) describe the manner of funding each improvement.]

(e) **Relationship of concurrency management plan to laws relating to adequacy of public facilities and development impact fees.** The [growth] CONCURRENCY management

plan shall be prepared so as to contain the required information and constitute a sufficient basis for adequacy of public facilities and development impact fee ordinances that:

(1) regulate the timing and sequencing of future development by conditioning approval of the development on the program of capital improvements described in subsection (d);

(2) do not require future development to bear the costs of the capital improvements necessary to accommodate existing demand at the applicable level of service standards; and

(3) require future development to bear the costs of the capital improvements attributable to the impact of the future development.

[(f) **Prohibition**. On or after January 1, 2005, the Planning and Zoning Officer may not submit an amendment or revision to the General Development Plan to the Planning Advisory Board or to the County Council unless the General Development Plan has been amended to include a growth management plan that complies with the requirements of this section.]

[(g)] (F) **Review**. The Office of Planning and Zoning continually shall monitor the effectiveness of the General Development Plan in accomplishing its function and shall [annually report to the County Council on the progress made by the County towards achieving the goals of the General Development Plan] PREPARE AND PROVIDE TO THE COUNCIL AN ANNUAL REPORT THAT CONFORMS WITH STATE REQUIREMENTS FOR ANNUAL COMPREHENSIVE PLAN REPORTS. At intervals not to exceed [five] TEN years, the Office of Planning and Zoning shall undertake a comprehensive review of the General Development Plan and its implementing mechanisms and shall recommend those revisions to the plan and implementing mechanisms as are necessary due to changes in demographic characteristics and social, economic, and environmental factors.

SECTION 3. *And be it further enacted*, That the 2009 General Development Plan is hereby amended as follows:

1. On page 3 of the Plan, under the heading State Planning Requirements, at the end of the first sentence insert 'and 2009'; and at the end of the first paragraph, after the colon, delete the eight bullet items and substitute the following 12 bullet items:

'¤ a high quality of life is achieved through universal stewardship of the land, water, and air resulting in sustainable communities and protection of the environment;

¤ citizens are active partners in the planning and implementation of community initiatives and are sensitive to their responsibilities in achieving community goals;

¤ growth is concentrated in existing population and business centers, growth areas adjacent to these centers, or strategically selected new centers;

¤ compact, mixed-use, walkable design consistent with existing community character and located near available or planned transit options is encouraged to ensure

efficient use of land and transportation resources and preservation and enhancement of natural systems, open spaces, recreational areas, and historical, cultural, and archaeological resources;

¤ growth areas have the water resources and infrastructure to accommodate population and business expansion in an orderly, efficient, and environmentally sustainable manner;

¤ a well-maintained, multimodal transportation system facilitates the safe, convenient, affordable, and efficient movement of people, goods, and services within and between population and business centers;

¤ a range of housing densities, types, and sizes provides residential options for citizens of all ages and incomes;

¤ economic development and natural resource-based businesses that promote employment opportunities for all income levels within the capacity of the State's natural resources, public services, and public facilities are encouraged;

¤ land and water resources, including the Chesapeake and coastal bays, are carefully managed to restore and maintain healthy air and water, natural systems, and living resources;

¤ waterways, forests, agricultural areas, open space, natural systems, and scenic areas are conserved;

¤ government, business entities, and residents are responsible for the creation of sustainable communities by collaborating to balance efficient growth with resource protection;

¤ strategies, policies, programs, and funding for growth and development, resource conservation, infrastructure, and transportation are integrated across the local, regional, state, and interstate levels to achieve these visions.' (Amendment No. 1)

2. On page 99 of the Plan, in the heading Goal, in the first line, after 'citizens' insert 'and persons with disabilities'.

On page 99 of the Plan, under the heading 'Actions', after the fourth and last bullet item, insert the following:

'***Policy 2: Provide for the needs of persons with disabilities in housing, transportation, and public services planning.***

Actions:

¤ Ensure that new development and redevelopment conforms to current ADA and FHA Fair Housing regulations.

¤ Provide public transit services that accommodate the needs of persons with disabilities.

¤ Promote affordable accessible housing units for persons with disabilities.

¤ Provide administrative relief through the regulatory process for unique issues related to accommodating accessibility to structures and pedestrian systems for seniors and persons with disabilities.'.

On page 126 of the Plan, in Table 7-2, under the heading 'Quality Public Services', after the fourth row, which begins with 'Locate senior housing options', insert the following:

'Provide for the needs of persons with disabilities in housing, transportation, and public services planning.	X	X	X'

On page 271 of the Plan, in Table 12-1: Implementation Schedule, after the first row, which begins with '2 Address additional space needs at the Brooklyn Park', insert the following:

'2	Ensure that new development and redevelopment conforms to current ADA and FHA Fair Housing regulations.	DIP, OPZ										
2	Provide public transit services and accessible housing units for persons with disabilities.	DOA, OPZ, MTA										
2	Provide administrative relief for unique issues related to accommodating accessibility to structures and pedestrian systems for seniors and persons with disabilities.	OPZ'										

(Amendment No. 2)

3. On page 140 of the Plan, delete the 2nd and 3rd full paragraphs, beginning with 'The results of this analysis down through 'productive soils are located', and substitute the following:

'The results of this analysis are shown in Figure 8-2. The PPA consists of approximately 39,430 acres of land in two separate areas and includes approximately 450 individual land parcels that are at least 50 acres in size and are zoned RA. The PPA contains the entire Rural Legacy Area which comprises approximately 83% of the total PPA acreage. Within the PPA, 14,262 acres are currently protected under agricultural districts and easements, of which 3,050 acres are in agricultural districts. An additional 5,964 acres are County or State-owned parkland. The remaining 19,204 acres are not protected by an easement or as parkland. Using the State's criteria, the County can establish a goal of protecting 80% of the remaining undeveloped land within the PPA.'.

On page 141 of the Plan, delete 'Figure 8-2: Priority Preservation Areas' in its entirety and substitute new Figure 8-2, attached as Exhibit 1.

On page 142 of the Plan, in the last sentence of the first paragraph, delete '10,933' and substitute '19,204'. (Amendment No. 4)

4. On page 199 of the Plan, after the second paragraph, that ends with 'sewer timing categories.', insert the following:

'The projected maximum day demand for the entire public water system including all pressure zones is estimated at 97.9 MGD for the projection year of 2025 (see Table 3-2 in the 2007 Master Plan for Water Supply and Sewerage Systems). The estimated maximum day groundwater supply of 112.9 MGD for the entire system will be adequate to meet projected demand. While the projected year 2043 maximum day demand of 123.9 MGD exceeds the estimated supply, the 2043 projection represents a hypothetical 'build out' or worst case scenario. As the water demand approaches the supply limits in the future, the County will continue to make needed adjustments in the public system which may include expansion of existing facilities and increasing flexibility between water pressure zones. More detailed information including demand projections in five-year intervals through 2025 may be found in the 2007 Master Plan for Water Supply and Sewerage Systems.

The City of Annapolis has proposed a Municipal Growth Boundary in its 2009 Comprehensive Plan [Draft] that provides for the modest expansion of City limits in two areas of approximately 90 acres and 16 acres respectively. The areas are currently developed but are considered opportunity areas for redevelopment if annexed into the City. In terms of public water and sewer, impacts on system capacities resulting from these future annexations would be minimal. Both areas are currently served or planned for service by public sewer within the County's Annapolis Sewer Service Area, which includes the City of Annapolis. Capacity in the sewer service area is projected to be adequate to serve any increased flow anticipated from future redevelopment plans, as presented in the City's Comprehensive Plan. Likewise, public water is currently provided to these two areas within the City's water system and the County's Broad Creek water pressure zone. Public water supply will be adequate to serve redevelopment of these two areas.' (Amendment No. 5)

5. On page 118 of the Plan, in the first sentence, delete '7' and substitute 'a number of'.

On page 124 of the Plan, in Table 7-2, delete the last row under the heading 'Balanced Growth and Sustainability'.

On page 125 of the Plan, in Table 7-2, delete the last row under the heading 'Community Preservation and Enhancement'.

On page 150 of the Plan, under the heading 'Design of Roadways', in the first sentence of the second paragraph, after 'Design and redesign of' insert 'County'.

On page 175 of the Plan, under the heading 'Public Information about Transportation', delete the entire paragraph and substitute the following paragraph:

'Through public workshops, neighborhood meetings, staff reports and other means, provide

public information and education on local transportation conditions, behavior, issues and improvement options. Hold at least one traffic and transportation workshop annually to update the public on conditions and proposed improvements.'.

On page 212 of the Plan, in Table 10-6, insert a row below the header row as follows:

	'(Acres)	TN (lbs)	Impervious Area (acres)	TN (lbs)	Departure from Existing	TN (lbs)	Departure from Existing	TN (lbs)	Departur e from Existing'

On page 213 of the Plan, in Table 10-7, insert a row below the header row as follows:

	'(Acres)	TP (lbs)	Impervious Area (acres)	TP (lbs)	Departure from Existing	TP (lbs)	Departure from Existing	TP (lbs)	Departure from Existing'

On page 217 of the Plan, in the second sentence of the second paragraph, delete '3 mg/l TP' and substitute '0.3 mg/l TP'. (Amendment No. 6)

6. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 16, Parcels 225 (part 2 of 2), 499, 317 Lot 7	Properties along Long Hill Road on the north side of MD RTE 100	Residential Low Density	R1	26	Residential High Density	Property is suitable for increased residential development since it abuts MD RTE 100 and is adjacent to existing high density residential and commercial property '

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly. (Amendment No. 7)

7. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 41, Parcel 97	1011 Skidmore Drive	Rural	RA	0.70	Commercial	Property fronts on US 50 and abuts commercial uses. Support future

							commercial use of property.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.
(Amendment No. 8)

8. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 13, Parcel 158	Southwest Quadrant MD RTE 175 and Brock Bridge Road	Residential Low Density & Small Business	R1 / SB	47	Industrial	Property is suitable for industrial uses as it is adjacent to Clarks Hundred Mixed Use development and abuts the Maryland House of Correction'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly."
(Amendment No. 10)

9. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 14, Parcels 111, 112, 165 and 335	Northwest Quadrant MD RTE 175 and Ridge Road	Residential Low Density	R1/R2	114	Residential Medium Density and Commercial	Property is suitable for increased residential development and community retail since it is near Fort Meade and existing and planned employment, is in the PFA, and is planned for pubic sewer.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and as shown on Exhibit 2, and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.
(Amendment No. 11)

10. Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 8, Parcels 36, 195, 255, 256, 257, 268, 520, L.SH26 F.518	Wright Road at SE Quadrant of MD 295 & MD 100	Industrial & Low-Medium Density Residential	W1/ R5	44	High Density Residential	Allow for future development of townhome/multifamily residential uses on these properties. '

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 12)

11. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 14, Parcels 273, 274, 275	1110 – 1118 Reece Road, Severn	Low-Medium Density Residential & High Density Residential	R5 / R15	4	High Density Residential	Allow for higher density residential use that is compatible with adjacent residential development.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 13)

12. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 4, Parcel 111, Lots 36 to 42	White Avenue, Linthicum	Low Density Residential	R1	7	Industrial	Allow for development of office uses next to adjacent new hotels and expand industrial land base.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 14)

13. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 38, Parcel 175 & Parcel 26, Block 207, Lots 1-9	Ridgely Road, Palisades on the Severn	Low Density Residential	MA2	3	Maritime	Existing marina is zoned for light commercial marina use.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly. (Amendment No. 9)

14. On page 101 of the Plan, after the paragraph that immediately precedes the Section titled 'Police Protection and Crime Prevention', insert the following:

'Sea Level Rise Planning

Sea level change has been occurring in the Chesapeake Bay area as well as globally, and a rise in sea level has been documented over the past century or more. Regional land subsidence in the Bay area also contributes to rising sea levels in relation to land mass. While the extent and range of impacts may vary, rising sea level will continue to threaten low-lying coastal plains making them vulnerable to erosion, flooding, inundation and salt water intrusion.

A rise in sea level will continue to have an effect on Anne Arundel County's 520 miles of shoreline and low-lying coastal areas. The shoreline will change. Areas currently inundated only periodically under storm and hurricane conditions may become permanently inundated as seawater migrates inland. Increased property damage due to standing water and flooding is possible. As sea level rises, so does the elevation of storm surge, further exacerbating the situation. Erosion will continue to occur along the shoreline as it adjusts to encroaching seawater, and will impact fringe marshes and tidal wetlands as well as increase sediment loads to the Chesapeake Bay.

While sea level changes have played a historic role in shaping Anne Arundel County's coastal environment, understanding how to address incremental and potentially significant changes in sea level is a difficult task. The challenge is further complicated by the broad spectrum of coastal issues and interests involved, as well as the inherent uncertainty associated with projecting sea level rise and its specific localized impacts. Despite these challenges it is clear that coastal managers and planners must plan for sea level rise. Initiating the development of an integrated planning and implementation strategy now will position the County to successfully adapt to the impacts of sea level rise and minimize future associated damages.".

On page 106 of the Plan, following the third and last bullet item, insert the following:

'Goal: Protect manmade and natural resources in coastal areas vulnerable to rising sea level.

Policy 1: Account for potential effects of future sea level rise in making land use and

planning decisions relative to planned development, provision of public infrastructure, emergency preparedness, and environmental protection.

Actions:

¤ Partner with the MD Department of Natural Resources to develop an integrated planning strategy that addresses potential threats in areas vulnerable to sea level rise impacts.

¤ Develop a strategic plan for a phased implementation response to achieve either avoidance or reduction of impacts to property, infrastructure, cultural and natural resources.

¤ Establish policies to guide the relocation, extension or expansion of public infrastructure in at-risk areas.'.

On page 126 of the Plan, in Table 7-2, under the heading 'Quality Public Services', after the fourth row , which begins with "Locate senior housing options", insert the following:

'Account for potential effects of future sea level rise in making land use and planning decisions.	X	X	X'

On page 271 of the Plan, in Table 12-1: Implementation Schedule, after the ninth row, which begins with '1 Plan and fund needed expansions', insert the following:

'1	Partner with the MD Department of Natural Resources to develop an integrated planning strategy that addresses potential threats in areas vulnerable to sea level rise impacts.	DPW, OPZ, OEM	→											
1	Develop a strategic plan for a phased implementation response to achieve either avoidance or reduction of sea level rise impacts to property, infrastructure, cultural and natural resources.	DPW, OPZ, OEM		→										
1	Establish policies to guide the relocation, extension or expansion of public infrastructure in at-risk areas.	DPW, OPZ'		→										

(Amendment No. 15)

15. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map

Changes', add a new row to read as follows:

'8	TM 10, Parcels 99, 374	East side of Marley Neck Blvd., west of Solley Road	Industrial	R5	18	Low-Medium Density Residential	Change Land Use category to reflect current zoning.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 16)

16. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 22, Parcels 429, 430	8301 & 8307 Veterans Highway, at Brightview Drive	Low Density Residential	R2	6	Commercial	Designate these properties for future commercial use.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly."

(Amendment No. 17)

17. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 19, Parcel 5	8436 Brock Bridge Road	Low Density Residential	R1	12	Medium Density Residential	Allow for an increased density of residential development that is compatible with adjacent residential development.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 18)

18. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 27, Parcel 4	520 Brock Bridge Road, Suburban Airport site	Low Density Residential & Transportation / Utility	R1	51	High Density Residential	Allow for future development of multifamily residential uses.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 19)

19. On Page 78 of the Plan, after the seventh paragraph insert the following:

'***Policy 2: Ensure maximum protection of the County's green infrastructure, non-tidal wetlands, designated wildlife refuges and other natural resource areas, even in areas designated as mixed use, in town centers or in areas designated for growth.***

Action:

- When reviewing proposed development in areas designated for mixed use or transit-oriented development, in town centers and in other designated growth areas, ensure that adequate protection is provided for the County's green infrastructure, non-tidal wetlands, wildlife refuges and forested areas in order to retain a high quality of life, preserve water quality, and maintain such areas as desirable places to live.'

On page 125 of the Plan, in Table 7-2, under the heading 'Environmental Stewardship and Water Resources', after the eleventh row, which begins with 'Establish an interconnected network', insert the following:

'Ensure maximum protection of non-tidal wetlands, designated wildlife refuges and other natural resource areas in areas designated as mixed use, in town centers or in areas designated for growth.	X	X'	

On page 268 of the Plan, in Table 12-1: Implementation Schedule, after the eighth row, which begins with '2 Develop a database of properties', insert the following:

'3	When reviewing proposed development in areas designated for mixed use or transit-oriented development, in town centers and in other designated growth areas, ensure that adequate protection is provided for the County's green infrastructure, non-tidal wetlands, wildlife refuges and forested areas in order to retain a high quality of life, preserve water quality, and maintain such areas as desirable places to live.'	OPZ											

(Amendment No. 20)

20. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 57A, Parcels 769, 762, 862, 863, 765, 867, 1405	915 to 939 Bay Ridge Road	Commercial & Low Density Residential	C1 / R2	3	Commercial	Designate these properties for future commercial use in their entirety to facilitate redevelopment of a local commercial center.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.
(Amendment No. 21)

21. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 50, Parcel 217	2691 Riva Road, Annapolis	Low Density Residential	R5	6	Commercial	Allow future commercial office uses on this property adjacent to an existing office park.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.
(Amendment No. 22)

22. On page 101 of the Plan, in the second line of the third paragraph, after 'scale emergencies.' insert 'The Emergency Operations Center (EOC) is the centralized location coordinating resource requests and deployments.'; and on the same page, after the third paragraph, insert the following new paragraph:

'Additionally, OEM facilitates the development, updating, and training of emergency management with the departments and agencies of Anne Arundel County. In the planning stages, OEM is responsible for maintaining its Emergency Operations Plan and consulting with County agencies to ensure that the Plan reflects the current situation in the County. It is essential that County agencies and departments report changes or updates in their emergency operations processes to OEM as outlined in the Emergency Operations Plan.'

On page 150, in the section "Design of Roadways", in the second paragraph in the third line, after 'routes' insert 'and emergency utilization'.

On page 172, after the third bullet item, insert a new bullet item to read as follows:,

'¤ Coordination with Emergency Planning: The Office of Emergency Management is responsible for coordinating emergency transportation resources and facilitating evacuations within the County. The placement of road shoulders, median cross-overs, and other emergency road usage options should be addressed with OEM in the planning stages.'

On page 177, in the section 'Policy 1' 'Actions', in the first paragraph, in the last line, after 'emergency management,' insert 'and design criteria to accommodate emergency usage such as adequate road shoulder space, median cross-overs, and staging of transportation resources,'. (Amendment No. 23)

23. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 9, Parcels 47 and 57	North side of 8th Ave., east of Penrod Court, Glen Burnie	Commercial, Residential Medium Density, and Natural Features	C3/ R5/ OS	9	Industrial and Natural Features	Change the portions of the property that are zoned for commercial and residential uses to an Industrial Land Use category. Property contains a long-standing concrete block manufacturing business.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly. (Amendment No. 24)

24. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 8, Parcel 212	1243 Old Dorsey Road, west of Telegraph Road	Industrial and Natural Features	W2/OS	0.8	Industrial	Remove Natural Features land use designation from this property which is partially zoned for industrial use.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly. (Amendment No. 25)

25. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 14, Parcel 670	7815 Sandy Farm Road, Severn	Low Density Residential	R1	5	Industrial	Property is currently developed with an existing

							warehouse use. An Industrial classification would support a future zoning change to bring the use into conformance.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 26)

26. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 15, Parcel 34 (Lots 1R and 5); Parcels 327 and 536; TM 14, Parcels 42, 519, 755	Sandy Farm Road and Wieker Road, south of MD 100 at Telegraph Road	Low Density Residential	R1	6 7	Commercial	Allow for future commercial use of properties near the MD 100 & MD 170 interchange.

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 27)

27. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 51, Parcels 165 and 91 (p/o Lot C)	Southwest quadrant of Admiral Cochrane Drive and MD 2	Residential Low Density	R2	8	Commercial	Support future commercial use of this property located on a major arterial highway.

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 28)

28. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 8, Parcels 387, 523, 391, 392, 393, 552, 553, 395, & 618, Lot 3	7442 – 7482 Shipley Avenue, Harmans	Industrial & Natural Features	W2/ OS	10	Industrial	Remove Natural Features land use designation from these properties which contain industrial park uses.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 29)

29. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 45, Parcel 721	708 Bestgate Road, east of Lincoln Parkway	Residential Low Density	R2	7	Commercial	Currently developed with a church. Designate the property for future commercial use.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 30)

30. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 15, Parcel 370	756 Old Stevenson Road, west side of New Cut Road at I-97 interchange	Residential Low – Medium Density	R5	1	Commercial	Support future commercial use of the property located near a major highway interchange.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 31)

31. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 55, Parcels 139, 140 and 141	158 – 164 W. Central Ave. (MD 214), east of Rolling Road.	Residential-Low Density	R1	3	Commercial	Parcel 140 contains an existing restaurant operating as a non-conforming use.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 32)

32. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 55, Parcel 123	2976 Solomons Island Road at Collison Lee Lane, Edgewater	Commercial & Residential Low Density	C2 / R1	2	Commercial	Eliminate split land use designation on this property to allow full commercial use.

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 33)

33. On Page 33 of the Plan, in the last line of the second full paragraph, after 'concern.' insert 'Furthermore, the current economic downturn was not predicted in the Fiscal Impact Analysis. The ability of the County to generate new revenue sources to address the deficit and surplus imbalance identified in Phase II of the study will be dependent on the recovery from the current recession.

(Amendment No. 34)

34. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', in Row 2, in the second column titled "TM/Parcels/Lots', after the last parcel number add the following '214, 216 and TM8, Parcels 162, 164, 173, 174, 175, 317, 321, 518, 163, 165, 313'.

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 35)

35. In Appendix A of the Plan which is 'Table A – 2009 Land Use Plan Map Changes', add a new row to read as follows:

'8	TM 39, Parcels 168, 169, 163, 167, 170, 266	1434-1436 Ritchie Highway, Arnold	Low Density Residential	R1	6	Commercial	Designate these properties for future commercial use.'

On page 117 of the Plan, revise 'Figure 7-1: 2009 Land Use Plan' accordingly and on page 119 of the Plan, revise 'Figure 7-2: 2009 Land Use Plan Changes' accordingly.

(Amendment No. 36)

36. On Page 275 of the Plan, in 'Table 12-1, Implementation Schedule', in the third

row, which begins with 'Identify the purpose', delete the arrow in the column for year 2012 and insert an arrow in the column for year 2011.

(Amendment No. 37)

SECTION ~~3.~~ 4. *And be it further enacted,* That the General Development Plan for Anne Arundel County dated April 2009, as amended by this Ordinance, is hereby adopted.

SECTION ~~4.~~ 5. *And be it further enacted,* That a certified copy of the General Development Plan for Anne Arundel County dated April 2009, as amended by this Ordinance, and prepared by the Office of Planning and Zoning, shall be permanently kept on file in the office of the Administrative Officer to the County Council, and a certified copy of same shall be permanently kept on file in the Office of Planning and Zoning.

SECTION ~~5.~~ 6. *And be it further enacted,* That this Ordinance shall take effect 45 days from the date it becomes law.

AMENDMENTS ADOPTED: September 21 and October 5, 2009

READ AND PASSED this 19th day of October, 2009

By Order:

Judy C. Holmes
Administrative Officer

PRESENTED to the County Executive for his approval this 20th day of October, 2009

Judy C. Holmes
Administrative Officer

APPROVED AND ENACTED this 27th day of October, 2009

JOHN R. LEOPOLD
County Executive

EFFECTIVE DATE: December 11, 2009

I HEREBY CERTIFY THAT THIS IS A TRUE AND CORRECT COPY OF BILL NO. 64-09, THE ORIGINAL OF WHICH IS RETAINED IN THE FILES OF THE COUNTY COUNCIL.

Judy C. Holmes
Administrative Officer